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1960

PETROLEUM WEEK

A McGRAW-HILL PUBLICATION

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Let your plans include the specialized knowledge and resources of the nation's Pioneer Oil Bank.

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"Ethyl" Multi-Purpose Additive gives you

3 EXTRA SELLING POINTS FOR YOUR GASOLINE

1. **Effective Detergency.** "Ethyl" Multi-Purpose Additive removes carburetor deposits which are a chief cause of rough idling.

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Look into "Ethyl" Multi-Purpose Additive. Just for its detergent value in keeping carburetors clean—this new gasoline improver more than pays for itself. Ask anyone who services carburetors—fleet mechanics, garage servicemen, your own automotive engineers—and you'll find that deposits in the throttle-body area are a chief cause of rough idling and a contributing factor to poor mileage.

"Ethyl" Multi-Purpose Additive costs only nine-tenths of a cent per barrel of gasoline. So when you figure its other values—as an icing inhibitor and anti-corrosion agent—how else can you add so much promotional value for so little cost?

Your Ethyl Representative can tell you how easy it is to add "Ethyl" Multi-Purpose Additive and show you proof of its advantages. He will also be glad to outline the wide range of services—including sales promotion help—available when you buy from Ethyl.

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DEPT/Opinions

Views That Make News . . .

"In forecasting the exhaustion of our hydrocarbon resources, the pessimists have revealed their lack of understanding of the fundamental geology of the country and of the discovery process. Actually, they have sold America short by having little or no faith in the potency of our system of free enterprise, which permits and fosters growth of the country and growth of resourcefulness . . .

"There are enormous areas, sparsely drilled, already containing giant fields with favorable geology for additional giants. Two of these rather large provinces are the Rocky Mountain states and the Gulf of Mexico offshore area."

—WAYNE GLENN
General Manager, production
Continental Oil Co.

"We have been so busy talking about octanes, additives, brand names, etc., in trying to capture our share of the existing market for our companies that we have forgotten the vast, untapped reservoir for increasing our markets by increasing total demand."

—HARRY L. MOIR
General manager, retail marketing
Pure Oil Co.

"There is ample evidence that the industry is not in a healthy condition. For example, the purchasing power from the sale of crude has declined seriously since 1948. As compared with 1948, today's 'crude dollar' is worth only 63¢ for the purchase of oil well casing, 70¢ for the payment of wages, and 76¢ for oil field machinery.

"These are symptoms of bad health. There are, of course, many others. Through the special committee to be appointed by [IPAA] President Alvin M. Hope, a forum is provided for study and solution of the industry's basic problems."

—MINOR S. JAMESON, JR.
Executive vice-president
Independent Petroleum Assn. of America

"Solution [of the federal gas regulation problem] is a simple producer decontrol bill restoring to the statutes the original intent of congressional natural gas legislation.

"Political opportunists unfriendly to the oil and gas industry have concentrated their fire on 'amendments' with such success that they have in the process scuttled the main element of producer decontrol, despite the fact that the need for that provision has never been seriously questioned, even by consumer-state politicians.

"Future success, then, seems to hinge on the producer's success in persuading other industry segments not to use the urgently needed producer decontrol bill as a vehicle for achieving pet projects of their own."

—HARRY C. JONES
President
Texas Independent Producers & Royalty Owners Assn.

. . . and Letters

Dear Sir:

In your story "Many Oil Men Don't Know the Answers" [PW—Jan.15'60,p13], it appears that—while we hold no brief for these oil men—your reporter, copy readers, and editors are a little short on the answers too. Mr. Harris, to whom you refer as "Sen. Oren Harris (D., Ark.)", was at last reports a Representative in Congress.

STARK FOX
Executive vice-president
Oil Producers Agency of California

Dear Sir:

My attention has been called to your "Looking Ahead in Washington" [PW—Jan.8'60,p18], which states that the Joint Economic Committee's subcommittee on energy problems, of which I am chairman, has abandoned the program of hearings started several months ago. While the subcommittee has not met during the congressional recess, and no specific dates have yet been set, the suggestion that the subcommittee has abandoned hearings is quite in error. As a matter of fact, I am planning to lay before the subcommittee at an early meeting plans for further and more intensive study of the problems which were brought to light in our preliminary hearings. The details of these plans will be announced in due course.

WRIGHT PATMAN
Rep., 1st Dist., Texas
U. S. House of Representatives

Dear Sir:

In your "Crude Desalting Grows in Favor" [PW—Jan.8'60,p43], the pictures are reversed. Canadian Oil Companies uses chemical desalting and the picture on the left is our refinery.

DOUGLAS F. RHODES
Supervisory chemist
Canadian Oil Companies, Ltd.

PETROLEUM WEEK *will publish reader comments each week. Address letters to LeRoy Menzing, Editor,* PETROLEUM WEEK, *330 W. 42nd St., New York 36, N. Y.*

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INSIDE *Slant*

HISTORY REPEATS ITSELF

Present day efforts of independent producers to obtain markets for their crude isn't new.

The problems began with the discovery of oil in Pennsylvania and were greatly in evidence soon after Spindletop set off the Gulf Coast play.

The history of Humble Oil & Refining Co. published recently by Harper & Bros., New York, bears this out.

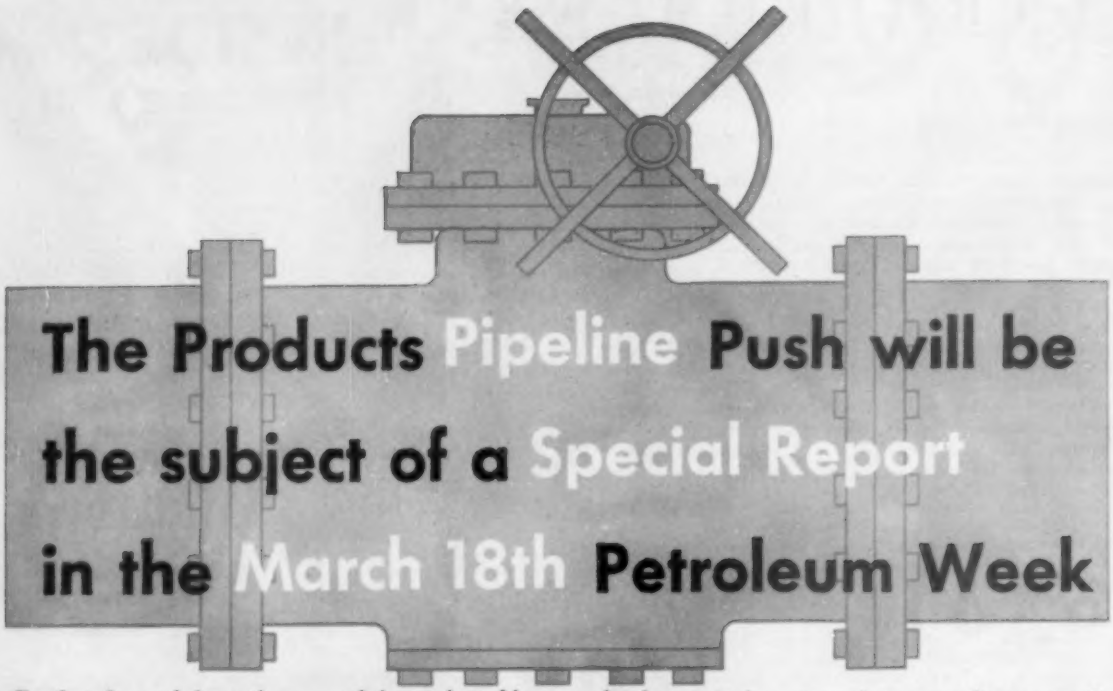
It shows clearly that then, as now, marketing was one of the major problems with which the early-day producers were confronted.

And there is a lesson for present-day purchasers in this quotation from the history:

"There was, moreover, a less tangible but very significant element in the situation: In older oil regions the large companies had learned, though they failed on occasion to remember, that long-time good relations with small producers was essential to a continuing supply of oil in adequate quantities, and that the only sound basis for such relations was recognition of a mutuality of interest.

"This attitude had apparently not yet progressed far in Texas, a fact which perhaps was evidence of the immaturity of the oil industry in that state."

LeRoy Menzing
EDITOR



The Products Pipeline Push will be the subject of a Special Report in the March 18th Petroleum Week

Continued – and dramatic – growth in product shipments by pipeline is expected to be the dominant development in petroleum transportation in the sixties.

More and more jet fuel, petrochemicals and other products will be moving all the way to airports and users by pipeline. Pipeline companies are also considering linking refining centers with major wholesalers.

Once again in the sixties volume of products moved by pipeline will increase faster than crude volume. In 1958, last year for which figures are available, pipelines moved about 934-million barrels of products and 2-billion barrels of crude. That represents a 200% increase for products and a 40% increase for crude over a 10-year period. This rate of growth in pipeline movement of products is expected to continue or increase throughout the sixties.

This product pipeline push, that will dominate petroleum transportation development in the sixties, will be the main subject of the Petroleum Week 1960 Special Report on Pipelines in the March 18th issue.

This once-a-year Petroleum Week Special Report on Pipelines will also survey and report on important developments in automation, corrosion prevention and other pipeline activities. The main emphasis, however, will be on the burgeoning new markets in jet fuels, petrochemicals and all products.

The advertising associated with this report in the March 18th Petroleum Week, like the report itself, will receive attentive readership from the management-minded oilmen at all levels and in all segments of the oil industry who are Petroleum Week's subscribers and regular readers.

Remember! This products pipeline push is part and parcel, not only of technological developments such as jet fuels and petrochemicals, but of the industry-wide scramble for markets that is the dominant factor in all oil industry operations today and of intense interest to oilmen everywhere regardless of their specific job responsibilities.

Advertise your products and services for pipeline construction, operation and maintenance to the largest paid circulation of buying decision makers in the oil industry in the March 18th Petroleum Week.

Closing date for space reservations: **February 26th**

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60-Second Summary / WHAT'S HAPPENING IN OIL

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Some of Venezuela's excess crude is being processed in this country in a unique "refinery in bond" operation. It's being picked up at cut-rate prices, and processed for export. . . . p. 11

•

The oil industry is headed toward another year of oversupply. The corrections required are immediate and sharp cutbacks in new supply and refinery runs to improve the imbalanced inventory position. . . . p. 9

•

Japan's oil find in the Persian Gulf may mean another drag on world markets. Its test was successful on its new concession offshore from the Saudi Arabia-Kuwait Neutral Zone. . . . p. 11

•

Refiners have their doubts about the use of tetramethyl lead as a gasoline additive. They've re-evaluated their earlier studies, but still question whether TML will replace or supplement tetraethyl lead. . . . p. 33

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Plastic-coated walnut shells are being used to help control down-hole sand problems. They're in prepacked sand screens, and tests are proving their effectiveness. . . . p. 19

•

BP Canada, Ltd., is making a big impression in Quebec markets. In 2½ years it has opened 600 retail outlets and is shooting for 200 more by the end of this year. . . . p. 50

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Auto makers are finding it tough to top the old reliable gasoline engine. Designers working on exotic power plants concede they're shooting at a moving target that's improving constantly. . . . p. 12

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Venezuela is pushing its plans to set up a national oil company. Statutes have been drafted, amid reports the company may be activated in April. . . . p. 13

•

Two maritime unions are pressing an organization drive among seamen on U.S. ships of foreign registry. If they succeed, more than 600 U.S.-owned tankers will be affected. . . . p. 43

•

A solid, phosphoric acid-type catalyst is expected to simplify ethylbenzene production operations. It also holds possibilities of cutting initial costs. . . . p. 34

•

Senegal and Soudan, in West Africa, are offering attractive incentives to promote oil exploration. Both have a new 50-50 law which includes 27½% percentage depletion. . . . p. 36

Up to the Minute / SIGNIFICANT LATE NEWS

February 5, 1960

The government expects to wind up its "price conspiracy" case against 29 oil companies by late next week. The trial before Federal District Judge Royce H. Savage, at Tulsa, might then be recessed to permit the companies to prepare motions for acquittal. Should they be denied, the trial is expected to be resumed about mid-March to hear defense evidence.

In the opening rounds this week, the defending companies won one important victory and lost one. Judge Savage refused to accept the mass of documents presented by government attorneys as evidence against companies other than those from whose files the specific documents were obtained. On the other hand, the judge admitted as evidence hundreds of documents that defense attorneys termed "hearsay." Judge Savage ruled that the documents—mostly interoffice memoranda—had been written by persons "in communication" with other companies regarding crude prices.

•

Shell Oil Co. cut its crude postings for Montana, North Dakota, and South Dakota by 15¢ a bbl., to a top of $2.55 a bbl. for 40-gravity. The reduction, which excepted the Richey and Southwest Richey fields in Montana, affected 30,000 b/d. It was made to "make these crudes competitive."

•

The Federal Power Commission blocked an intrastate exchange of natural gas this week. It ruled 4-1 against exempting Oklahoma Natural Gas Co. from FPC jurisdiction on a proposed exchange of gas with Consolidated Gas Utilities Corp. Chairman Jerome Kuykendall said that, under the exchange, Oklahoma's gas would become commingled and transported with gas moving in interstate commerce.

The ruling could mean more federal control over intrastate gas transactions. That's the view of Commissioner Arthur Kline, who dissented. More than 40% of all marketed gas is sold and consumed within the state where it is produced, Kline argued. And most of that volume is sold to pipelines operating in intrastate and interstate commerce, he added.

•

Sinclair Oil Corp. and Koppers Co., Inc., will build a styrene plant in Houston with an annual capacity of 70-million lb. Planned for completion in mid-1961, the plant will operate on ethylbenzene from Sinclair's Houston refinery.

•

Texas Natural Gasoline Corp. and Union Oil & Gas Corp. of Louisiana signed a merger agreement this week. Stockholders will vote on the plan Mar. 3. The merged firm will be known as Union Texas Natural Gas Corp.

•

The spacing pattern will be continued at 80 acres in Utah's Greater Aneth area, the Utah Oil & Gas Conservation Commission decided this week. A group of companies had requested a change to a 40-acre pattern.

Whatta Ya' Mean Too Many Logs?

"Yes, sir, that's right—too many logs!

"You see, today we have over 40 different types of logging services to choose from, so it's no wonder our wells are sometimes "over logged," inadequately logged or logged with the wrong tool. But now we have a new easy-to-use logging program developed by Welex."

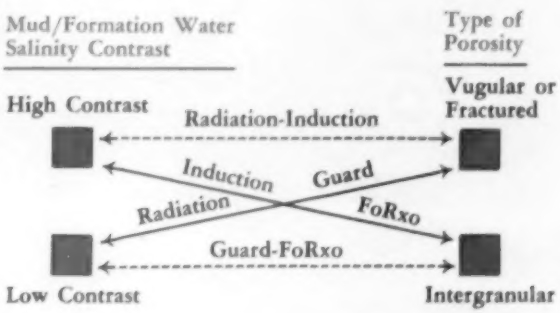
Here's a smart well man who knows that regardless of how many logs he runs, he needs the answers to two main questions. What is the POROSITY? What is the FLUID SATURATION?

Welex's new easy-to-use logging program is based on four Welex logging services — the Guard-FoRxo, Induction-FoRxo, Radiation-Guard and Radiation-Induction. One of these four services will give fast accurate answers in more than 90 percent of today's wells.

The diagram shown here indicates the right service, based on the type of mud and type of porosity.

And with Welex's easy-to-use interpretation charts, or "pigtails," printed right on the log, anyone can read the "answers" directly off the log with the speed, accuracy and confidence of an expert.

Welex's new easy-to-use logging program reduces confusion, costs and complicated computations. Call your nearest Welex representative and get the best.



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For the first time since the advent of gas chromatography in mud logging, here is an electronic system that answers all field requirements.

Simple in design and operating principle, the new and versatile **P**rogrammed **H**ydrocarbon **D**etector provides super-sensitive detection and analysis of *total* gas. Not simply one, or two, or three hydrocarbon components but *all* fractions present — including the heavies. And you can monitor the components in rapid-fire sequence — either singly or in various combinations.

P/H/D, utilizing a Core Lab-conceived "back flush" technique, automatically analyzes and records methane only, plus heaviers, in 90 seconds; methane and ethane individually, plus heaviers, in 120 seconds; methane, ethane, and propane individually, plus heaviers, in 180 seconds; etc. The range from methane through pentanes can be completed in six minutes!

A *single* continuous recording is cleaner and sharper with taller peaks — making the heretofore "lost" heavier hydrocarbons easy to discern.

P/H/D is built the way rig-side service equipment should be built — sturdy, compact, and with no complex maintenance problems.

P/H/D is not merely an untested drawing-board project. It's ready *now* to help you find more oil.

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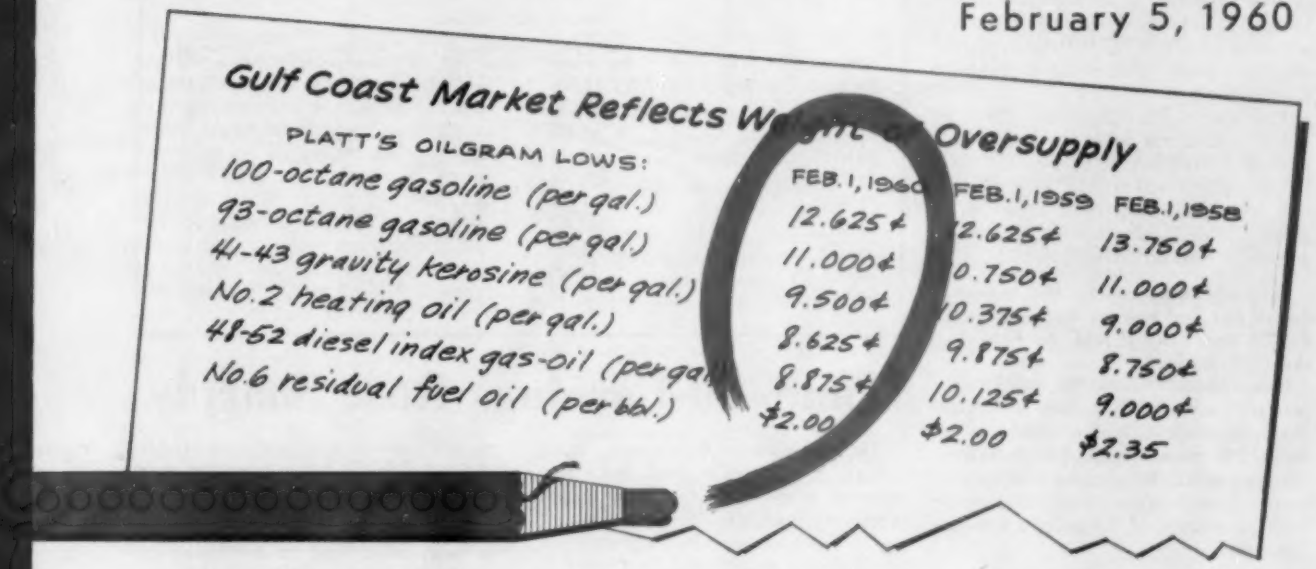


The 1960 Outlook Has Turned Very Dark

High operating rates in January in face of warm weather have deteriorated what started out to be a good year.

After only one month's operation in 1960, the oil industry appears headed into another year of oversupply.

The present outlook for the industry is in sharp contrast with the position of just a few weeks ago. At the start of the year, the industry was in its best position inventory-wise that it had been for years.

And oil men generally were predicting that 1960 would be a year of peak demand, and one of "recovery" from the doldrums of oversupply that had plagued operations.

The blame for the deteriorating position can be attributed to the excessive refinery runs during January in the face of warmer-than-normal weather—a trend that developed as far back as early December.

"Already 1960 is proving to be a depression year for distillates," one major company economist commented this week. "We would need much colder than normal weather over most of the country in February and March to cut into the surpluses that have been created."

At the start of 1960, distillate fuel oil stocks were 24.1-million bbl. above the start of 1959—a surplus position, but not surplus to the extent that it could not have been corrected with moderate operating rates.

Now distillate fuel stocks are 32-million bbl. over a year ago, and well in excess of the so-called desirable level.

Over-all demand during January would have had to be very strong to top the 11.2-million b/d average of last year. But incomplete figures now indicate that last month's demand may fall about 500,000 b/d short of the year-ago demand.

Distillates demand last month ran about 600,000 b/d below the previous January, according to preliminary figures. The decline results from the weather and from inroads by natural gas.

Such a difference in demand will be difficult to "make up," even with the coldest weather.

The impact of the industry's surplus position is reflected in the low wholesale prices of products on the Gulf Coast (table, above).

Generally, current prices are below the quotations of the last two years.

Current spot cargo prices of No. 2 heating oil, which started the week at 8.625¢ a gal., dropped 0.25¢ to 8.375¢ a gal. at midweek, only slightly above the seasoned low of last July.

And a further bind on refiners is the wide "spread" between gasoline and No. 2 prices.

In the past four years, the price of No. 2 on the Gulf in January has averaged only 1.5¢ a gal. under the quote for regular-grade motor fuel (93-octane). But with both distillate and gasoline prices weak, the spread currently is to 2.625¢ a gal.

According to one company's calculations, the present margin of all Gulf Coast refiners—product realization over delivered prices of crude—averages 81¢ a bbl. A year ago, with some crude prices higher, it was 84¢ a bbl.

The squeeze on product prices now undoubtedly will mean a continuation of the heavy pressure on posted prices for some crudes.

Crude postings have undergone an almost constant round of selective downward adjustments for about two years. The chances for an improved outlook for crude postings now are nil. Again, it's a sharp contrast from the outlook at the start of the year, when producers, eyeing the demand forecasts, were generally optimistic.

The industry's position may show still further deterioration before any improvement is noted. The reason: Demand will decline seasonally between now and next fall. And supply will have to be trimmed sharply to match the pattern of demand and to cut into the current oversupply.

But the immediate prospects don't point to any correction of the oversupply. The reason is that February's rate of new supply will exceed Janu-

ary's, and, barring unusually cold weather this month, February demand can be expected to average less than January's. Total new supply in January averaged about 9,765,000 b/d, with domestic crude output at just over 7.1-million b/d.

But the higher allowables set for February indicate domestic crude output of 7.3-million b/d. Natural gas liquids output will average about 900,000 b/d, plus imports of about 1.7-million b/d. It all adds up to a new supply of almost 10-million b/d.

Estimates are that for the remainder of the first half of the year, new supply and runs should be held to the 1959 levels.

Since imports under the mandatory plan undoubtedly will remain constant, domestic crude output would have to be held to about 7-million b/d. Refinery runs would have to be held to no more than 8-million b/d, compared with an average of 8.3-million b/d in January.

Here's A Roundup of Oil's 1959 Earnings

(In thousands of dollars)

Company	Full Year Net Income	% Change from 1958	4th Quarter Net Income	% Change from 1958
California Standard	$254,000	— 1.5%	$73,886	+ 5.5%
Continental Oil	60,300	+24.6	14,970	+ 3.0
Imperial	54,400	+ 7.5	16,720	+ 2.6
International Petroleum	23,600	+38.8	15,800	+100.0
Jersey Standard	626,000	+11.3	149,000	— 11.0
Phillips	104,000	+23.5	26,614	— 0.1
Shell	147,400	+14.6	43,345	+ 9.6
Sun Oil	42,844	+33.6	15,341	+ 62.5
Texaco Inc.	354,000	+13.8	92,146	+ 11.2
Texas Pacific	7,197	+15.5	2,014	— 2.5

Some '59 Earnings Rose Sharply

Neither chronic oversupply, shaky prices, nor a major steel strike succeeded in cimming the luster of oil company profits in 1959.

Continental Oil Co.'s earnings set an all-time record last year—$60.3-million, or $2.85 a share. These profits represent a healthy 24.6% increase over adjusted 1958 net earnings of $48.4-million. Continental's fourth-quarter earnings were $14,970,000, up 3% over the same period a year ago.

Texaco's profits set another record for the company. Earnings in 1959 jumped 13.8 to a high of $354-million, or $5.85 a share, compared with slightly better than $311-million, or $5.24 a share in 1958. Earnings in both years were adjusted to reflect Texaco's acquisition of Paragon Oil. The company reported its fourth-quarter earnings at $92,146,000, up 11.2%.

Shell Oil's earnings ran 14.6% over in 1959, while its fourth-quarter net showed a 9.2% boost over the same period the previous year.

Higher earnings were chiefly due to high sales, and to continued reductions in unit operating costs.

Standard Oil Co. (N. J.), whose net income was up 11.3%, reported that the improved earnings can be attributed mainly to "record sales volumes, as well as more efficient use of facilities in handling the higher operating levels attained in the year."

Next year may be the best ever for some—if the industry solves its oversupply problem.

K. S. Adams, Phillips' chairman, said in his report to stockholders: "We expect 1960 to be another record year in earnings. The benefits of the company's diversification will continue to be reflected in the higher earnings."

Oil Man's Album

How to Boost Demand

The past can provide valuable lessons for the present. Back in the 1880s, one problem was how to boost demand for kerosine in China.

The then Standard Oil Co. faced opposition of a merchants' monopoly, and consumers' fear of hazardous lamps.

The solution: Manufacture a safe lamp, make it available to the Chinese at a low price, and provide the best fuel. It worked.

(No. 37 in a Petroleum Week series.)

Divorcement Would Hurt Jobbers

Divorcement proposals now pending could legislate many jobbers out of business or create such turmoil that they wouldn't be able to compete effectively or economically.

That's the opinion of George D. McDaniel, manager of dealer and distributor relations of Mobil Oil Co.

In blunt, hard-hitting words, he told this week's annual meeting of the Missouri Petroleum Assn. that it would be "quicker and easier" for jobbers to slit their own throats.

Divorcement at the refinery gate would mean that an integrated company's activities stop there—and in the wake would be a multitudinous array of new marketing companies.

As a result, said McDaniel, the drive for efficiency might well eliminate the jobber entirely, or bypass him in direct routes from refinery gates to service stations.

And, he asked, "Who would buy and operate the millions of dollars worth of transportation and storage facilities.

The axe also could force jobbers to get out of the service station business.

McDaniel pointed out that some dealer representatives want the separation to be made between suppliers and dealers. That, he said, means jobbers would have to get out of the service station business.

McDaniel expressed doubt that integrated companies would be able to provide credit-card systems, national advertising campaigns, brand identification signs, architectural plans, and similar items.

Japanese Find Mideast Oil; Need Outlet

The Japanese last week became the first "newcomer" to strike oil in the Persian Gulf, potentially adding another unsettling factor to already glutted world markets.

Arabian Oil Co., which is owned by a group of private Japanese business firms, found oil in its new concession, offshore from the Saudi Arabia-Kuwait Neutral Zone at the head of the Persian Gulf. Its initial test found oil at about 5,400 ft. from a floating platform 28 mi. out in the gulf.

The Japanese company said the test could produce 6,290 b/d.

No other details of the test were available, but the company said the structure "appears similar" to the neighboring Safaniya field, 25 mi. to the south, which is being produced by Arabian American Oil Co. This would put the test in the Bahrain zone, a Cretaceous formation.

A spokesman for the company in Tokyo told PETROLEUM WEEK, "We have no doubts from our geophysical surveys that this body of oil is of considerable size."

Earlier the test hit gas at 1,500 ft., blew out, and caught fire. The fire raged for almost two weeks, with damage estimated at $750,000.

The Japanese-owned Arabian Oil Co. has no existing market outlets or distribution facilities of its own—not even in its home country.

Managing director Shotaro Suginomori said the company "will leave the marketing problem up to the Japanese government."

But, he added, "by no means does the company intend to compete with international firms already marketing in Japan. Since Japan's demand for crude is increasing, Arabian thinks it can get its share."

Arabian Oil also feels that it would be "awfully difficult" to start a sales campaign for the international market. The company acknowledged that there are no markets for its crude in Europe because of the availability of nearby North African oil.

The company hopes to start exports to Japan before the end of the year.

Arabian, its managing director said, would like to distribute its production to every refinery in Japan—"if possible without discrimination whether it is an independent or a firm with international connections."

Under present trade regulations, there are no provisions for importing crude without a foreign-exchange allocation.

Morgan Walker, an American consultant, is now in the Persian Gulf, studying designs for port and other facilities needed.

In the meantime, the company is bringing in a second contractor to speed up its offshore drilling program.

A two-year $5.8-million contract was let to Seacat Offshore Drilling, and three new platforms have been ordered (PW—Jan.29'60,p37). The company's first two-year contract is held by International Drilling.

Arabian Oil plans eight or nine more tests before the end of the year.

The Japanese concession was acquired at the end of 1957. It differs in several respects from existing Middle East concessions.

Instead of the standard 50-50 profit-sharing pact, the company negotiated a deal with the Saudi Arab government providing a 56-44 profit split. And later, in negotiations with Kuwait, it agreed to a 57-43 split. (Oil rights in the Neutral Zone are shared by the Kuwait and Saudi governments on an undivided basis.)

In addition, the Japanese agreed to Saudi Arabia's demand for "integration"—that is, to share profits, if any, from foreign transportation, refining, and marketing of the oil with the producing governments.

Two other newcomers are now drilling in the Persian Gulf.

They are Indiana Standard's Pan American and Italy's Ente Nazionale Idrocarburi, both drilling off the coast of Iran. Neither company has yet completed its first test.

'Bonded Refinery' Goes on Stream

A unique "refinery in bond" went on stream in New Jersey this week. It is processing Venezuelan crude for markets abroad.

In effect, the operation created what could be called the first "export refinery" in the U. S. And it represents a method for moving Venezuelan crude which heretofore has been stalled for lack of markets.

Present import regulations exempt "bonded" imports, primarily residual fuel oil for ships' bunkers. Presumably, foreign crude processed "in bond" for export shipment also is exempt from controls.

American and Venezuelan interests are involved in the multiphase affair.

The principals are Interamerican Refining Corp., a newly formed company; Petroleum Separating Co., which is identified with Metropolitan Petroleum Corp.; and Amoco Trading Corp., a Standard Oil Co. (Ind.) affiliate.

Interamerican is headed by James M. Wadsworth, formerly of Monsanto Chemical Co. Secretary and Venezuelan representative is Dr. Miguel Moreno, who was identified as a "former government official."

Interamerican is buying the crude from Amoco Trading for processing by Petroleum Separating at its Bayonne (N.J.) plant. This is part of the old Tidewater refinery which that company disposed of in 1956.

The crude is excess production from Lake Maracaibo, and is being bought and sold at less than posted prices.

A spokesman for Amoco Trading, however, refused to identify the source or the suppliers, other than to say that "it's not our own production."

He described the crude simply as excess production that's available at competitive prices.

The arrangement provides for processing 12,000 b/d of crude, with the bulk of the yield in heavy fuel oils.

Interamerican says the product offtake will be 60% bunker fuels; 22% gas oils, and 18% naphtha.

The crude runs around 27-Gravity.

Thus the bunker fuel offtake is considerably lower than the 98%-yield which Petroleum Separating has been getting from lower-gravity crude.

The processing deal represents a little more than half of the refinery's capacity.

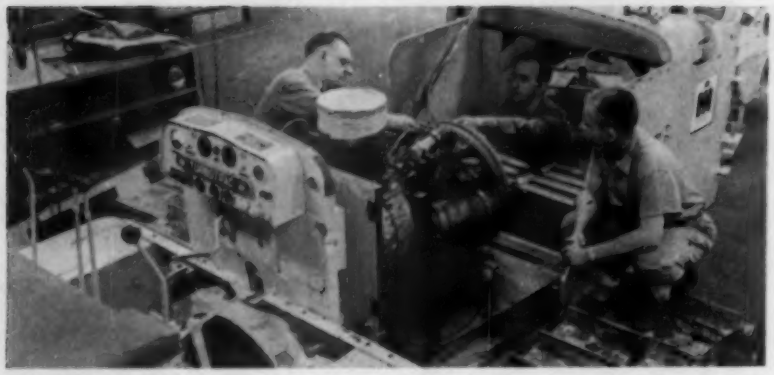
The crude is being run in a topping unit that was re-engineered in late 1956 and early 1957.

Market outlets will be sought in Europe and Canada.

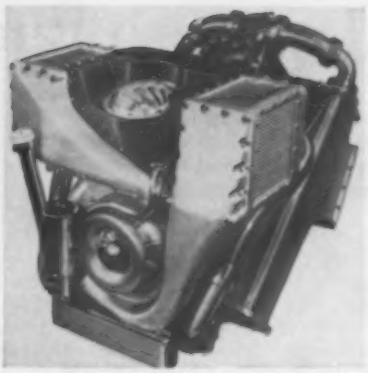
Interamerican officials are reluctant to go into details, but they say these will be the main targets.

The first cargo arrived at Bayonne last weekend. The initial shipment consisted of 110,000 bbl. and, in the words of one Interamerican official, "as long as we have no trouble getting supplies, we'll keep it coming."

He conceded that if the supply situation should tighten up at any time, the processing picture could change just as quickly.



INTERNATIONAL, HARVESTER is testing a 235-hp. gas turbine mounted in a crawler tractor for roadbuilding and excavation work. Liquefied petroleum gas is the fuel, and the company says the results of the tests so far are promising.



FORD says this lightweight 300-hp. gas turbine rivals diesels and gasoline engines alike in fuel economy.

What's Ahead for Gasoline Engines?

The "old reliable" gasoline engine is proving to be an increasingly elusive target for "exotic" engine designers to surpass.

This is supposed to be the decade that'll see the greatest challenge yet to the long-time supremacy of the reciprocating engine.

But the way Detroit's top experts appraise the outlook now, it's going to be a long and costly uphill struggle before orthodox piston jobs are displaced.

The oil industry has more than a passing interest in what's going to happen. Any radical change in the motive power of the millions of pleasure cars in this country could have a revolutionary effect on its principal product and moneymaker, gasoline.

Gasoline currently accounts for nearly half of the country's total demand for petroleum products. Thus, this is a multibillion-dollar proposition, which could affect not only output, but processing techniques as well.

One big reason why the gasoline engine is a tough champion is that research itself is in the throes of a two-way struggle. Another is that it's a constantly moving target.

On the one hand, various manufacturers are pushing laboratory and prototype studies of gas turbines, lightweight diesels, rotaries, injection systems, and fuel cells.

On the other, they're constantly improving the efficiency and economy of the orthodox engine. Each change or modification raises its standards a bit higher, making it more difficult for radical concepts to catch up.

One leading engineer describes the pace of research into exotic engine designs as "frantic." But again, while this is going on, there are ten times as many engineers and others refining and rerefining the conventional gasoline engine.

WILLIAMS says this boat-tested gas turbine is only breadbox size.

That's why engineers at the management level, who are basically neutral to everything but cost-per-horsepower, say that radical designs may never really catch up with piston engines.

The passing point means that the new design must have more power and flexibility, equal or better economy, the same or less weight, and be less costly to manufacture.

So far, nothing has come out of the research labs to equal these goals.

The leading contender in the field is the gas turbine, according to Chrysler Corp.

Chrysler's executive engineer for research, George J. Huebner, is enthusiastic about the possibilities of gas turbines in passenger cars.

He feels that successful application of gas turbines to pleasure cars could be only five to six years off.

Chrysler is assembling an experimental turbine engine labeled "2C." Huebner describes it as an evolutionary model in the 140-hp. range.

"We are aiming at a cost level in competition with the conventional V-8, and we already are very close," Huebner told PETROLEUM WEEK.

Ford and General Motors engineers believe, however, that gas turbines have a long way to go before they are economically feasible in passenger cars.

Says A. E. Cleveland, manager of Ford's reciprocating-engine development program:

"Our feeling is that turbines will probably catch up with reciprocating engines in heavy-duty trucks—but not in passenger cars.

"Truckers will pay high to save weight on the front axle. They are running out of horsepower and the turbine's principal advantage is low weight per horsepower."

In similar vein, C. L. Bouchard, manager of turbine development for Ford, says his department's attention is concentrated primarily on 200-300-hp. turbines for use in heavy-duty trucks.

"Costs get out of line in small turbines," he notes.

"It is a tough, costly, and slow evolutionary process, with no sudden breakthroughs in sight. We may see widespread application [in trucks] within five years, but maybe not until ten."

Neither Max M. Roensch, in charge of test engineering for Chevrolet, nor Darl F. Caris, head of GM's power development section, hold much hope for gas turbines in passenger cars.

Roensch doesn't believe the cost per horsepower of gas turbines will

ever match that of the V-8 engine.

Caris says brusquely that, "It has to compete with the piston engine, and so far it hasn't." His opinion is that the gas turbine is limited to "commercial, heavy-duty, and marine applications."

A newcomer on the scene is the Williams' Research Corp. engine, which some of the automotive brass feel is closest to the goals that lead to widespread use.

This engine weighs only 1 lb. for each of its 75 hp. It is a free-shaft, two-stage engine, which means that it can be hooked to the rear wheels of a car through a simple gear box.

Despite its compact size and light weight, it is fully regenerative. Its makers claim it stood up well during 15 months of testing in a boat, and they say that only a few minor problems remain to be solved before it can be mass-produced.

The possibility of diesel engines in passenger cars isn't very bright at the moment, either.

Ford's Cleveland thinks that diesel engines will have to be redesigned for a much wider operating range before they can compete with gasoline-powered engines.

The best operation presently available, he says, is between 1,500 rpm. and 3,200 rpm. This requires a heavier, more costly transmission.

Cleveland also rates noise and the cost of injector equipment as objectionable features.

Roensch, of Chevrolet, is even more pessimistic. He sees "no hope" for the diesel engine in passenger cars, explaining: "The mileage driven per year by the average owner is not enough to justify the extra equipment cost."

Other items in Detroit's "think tank" include fuel injection systems, free-piston turbines, and fuel cells.

Cleveland believes that if someone would design a new engine around fuel injection, instead of tacking it on as an accessory, then there would be some hope for widespread adoption.

Roensch is a bit more bullish about the matter. He foresees the possibility of a $100 fuel-injection system—compared with the $484 that it now costs.

The free-piston turbine, so far, has failed to live up to its promise. Ford and GM experimented with test engines and maintenance, among other things, proved a troublesome problem.

Auto makers are keeping their eyes and ears open on the progress of fuel cell development, but generally they aren't too concerned about its potentials. They say "it looks wonderful on paper . . . but."

Plans are drafted in Venezuela as . . .

National Firm Shapes Up

CARACAS—The national oil company, which Venezuela has been talking about for a decade or more, took a 20-league step toward reality this week.

This came about when the Ministry of Mines & Hydrocarbons gave the National Energy Council its draft of the proposed statutes and facilities of the "Venezuelan Petroleum Corp."

The council, a government advisory body set up last year, will review the draft and incorporate its own thoughts before passing it along to President Romulo Betancourt, who'll make the final decision.

The word in Caracas is that the whole matter may come to a head in the very near future.

Some reports held that formal activation of the national oil company would be tied in with the celebration of Venezuelan's Independence Day in April.

This could be a distinct possibility, for the draft statutes represent the first real crystallization of proposals and discussions.

If the proposed statutes are enacted, the company will be a national dependency, but will have its own legal status and independent assets.

It would be attached to the Ministry of Mines & Hydrocarbons. And the indications are that the ministry's chief, Dr. Juan Perez Alfonzo, will hold tight control of the company.

He (or his representative) would be the head of a nine-man general council appointed by the president and charged with determining the long-range plans and policies of the firm.

Executive direction would be in the hands of a board made up of a president and three others, selected from the membership of the general council.

The assets of the proposed company are extensive.

The draft statutes describe the endowment of the company as follows:

- Oil development parcels, which will be specified later.
- The Anaca-Caracas and Caracas-Valencia gas transmission pipelines, together with their distribution networks and related properties.
- Capital appropriations from the government (amount unspecified).
- Properties which may be transferred to the corporation subsequently by the government. (This could include the government's petro-chemical operations at Moron, which, although relatively small, represent a multi-million-dollar investment).
- Income derived from the operations of the corporation.
- The power to borrow money and issue bonds.

Perez Alfonzo has said previously that the national oil company, when it comes into being, might set up subsidiary companies in which private investment would be allowed.

The objectives of the proposed company embrace all phases of petroleum's varied operations.

Specifically, the draft statutes provide for these key points:

- Exploration, exploitation, manufacture or refining, and transport of hydrocarbons, as well as their disposition in any manner within or outside the country.
- Promotion of companies for the purpose of carrying out industrial and commercial activities with hydrocarbons. The corporation may invest capital in such companies, and may acquire shares or interests in existing companies of this type.
- Any other activities that will contribute to the fulfillment of the objectives of the corporation. (This specification is a catch-all of seemingly unlimited scope).

The draft proposals also spell out the duties, obligations, and responsibilities of the firm's controlling group.

This is the general council, which will be directed by Perez Alfonzo. It will formulate internal regulations of the corporation; prepare its annual budget to be submitted to the minister for his approval; examine, and approve or reject, the annual report to be submitted by the executive board to the Venezuelan president; rule on promotion of other companies or purchase of shares; and name department chiefs.

Expenditures in excess of $150,000 will require the ministry's approval.

While the development parcels to be turned over to the national company were not specified, Perez Alfonzo previously pointed out that there are national reserve lots offsetting proven acreage, which the company could develop. He also said, at that time, that unassigned areas may be explored subsequently through "joint government-private enterprise patterns."

The gas lines that were listed as part of the assets of the proposed company currently are being operated by the Venezuelan Petrochemical Institute.

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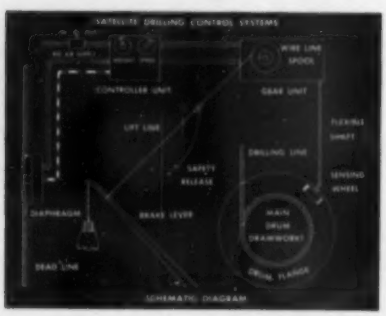

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What's New / IN THE INDUSTRY

W. R. Grace & Co. has accepted tenders to purchase 1,580,000 shares —or slightly more than 51%—of Cosden Petroleum Corp. stock. The tenders were submitted based on Grace's offer to purchase the stock at $25 a share. Earlier, the company had announced that if it were offered more than 50% of the Cosden stock it might eventually acquire the company by purchase or merger. Grace's attempts to acquire Cosden date back to 1956.

•

"Area pricing" resulted in a reduction in initial gas prices for two producers last week. Examiner William J. Costello recommended to the Federal Power Commission that a price of 21.2¢ per Mcf. proposed by Humble Oil & Refining Co. and Ohio Oil Co. be trimmed to 18.72¢ on a sale to United Gas Pipe Line Co. Costello's recommendation was reached by taking an "arithmetical average" of all comparable certificated prices in the market area—the guides that have been set by FPC (PW—Jan.29'60, p11).

•

A real shortage of young petroleum engineers seems likely in the next year or two. Dr. George H. Fancher, University of Texas educator, blames the shrinking supply on the fact that abundant oil reserves around the world have discouraged students from entering petroleum engineering. The university's engineering school, one of the nation's largest, awarded 120 bachelor or graduate degrees in 1958, but only 116 last year. Fancher predicts that 1960's graduating class will drop to 75 or 80 students.

•

The offshore operations of the CATC group—Continental, Atlantic, Tidewater, and Cities Service—may be in the black in 1960. That's the estimate of George F. Getty II, president of Tidewater. He predicted that a speed-up in offshore production and an increase in revenues make it likely that the "present investment will pay out in four or five years."

•

The Oil, Chemical & Atomic Workers Union has reached the first pact in its Canadian campaign. OCAW's Local 16-600, in St. Boniface, Manitoba, has concluded a contract with North Star Oil that provides wage increases ranging from 24¢ to 40¢ an hour over the next three years, plus fringe benefits worth 17¢ an hour effective immediately.

•

"The oil and gas industries should operate at somewhat higher levels in 1960," Dresser Industries, Inc., predicted this week. The company reported 1959 earnings of $9,171,000, compared with $9,882,000 in 1958. The current order backlog amounts to $54.5-million, compared with $42.9-million a year ago.

Two figures published by Petroleum Week in the story "Intrastate Gas Sales Are Booming (PW—Jan.22'60,p15) were in error. Consumption of its own gas by an Oklahoma major was erroneously placed "at about 1-trillion cf/d" by 1972. The figures should have read "1-billion cf/d." Also in the chart on page 17, the figures on "one company's chart of gas use" were shown in "billions of cf/d." The figures actually were "millions."

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Looking Ahead in Washington

McGraw-Hill
Washington
Bureau
February 5, 1960

The new Roosevelt marketing bills now face even more of an uphill climb than was expected earlier. Rep. James Roosevelt (D., Calif.) had expected his series of three oil marketing antitrust proposals (PW—Jan.29 '60,p44) to be referred to the House Judiciary Committee. The California lawmaker, who wants to "divorce" oil companies from much retail marketing, said he expected the full cooperation of Rep. Emanuel Celler (D., N.Y.), chairman of the Judiciary unit.

The bills were sent to the House Commerce Committee—rather than Judiciary. This switch caught the Roosevelt forces off-guard. They immediately picked up the pieces, however, and said they preferred the change because of the likelihood of earlier hearings. But the Commerce Committee, under Rep. Oren Harris (D., Ark.), cannot be expected to give much support to the Roosevelt bills. The committee membership has a tone of moderation, and is not given to such drastic actions as proposed by Roosevelt. So the outcome is that Rep. Roosevelt, who personally acknowledges that his "divorcement" bill has little chance of passage anytime soon, will have his work cut out for him.

•

Changes in oil and gas leasing rules are getting renewed consideration in the House. A House Interior subcommittee this week started hearings on an omnibus leasing bill, left over from last year, which would increase limitations and extend terms of leases. Administration supporters will attempt to include higher lease fees in any measure approved by the subcommittee. President Eisenhower recently renewed his plea for the increased fees in his budget message. Backers of the leasing changes believe Congress may pass the legislation this year. The President's veto of an Alaskan leasing measure in 1959 is credited with the failure of the omnibus bill last year.

•

Sen. George D. Aiken (R., Vt.)—recently returned from a Latin American study mission—is urging a more liberal oil imports policy. Aiken this week presented the findings of his one-man tour to the Senate Foreign Relations Committee. The New England senator, who has been critical of oil import restrictions in the past, said Venezuelans are particularly miffed about the exemptions given Canada and Mexico by the U.S. "The Venezuelans feel that this exemption discriminates against them," the senator reported. He predicted that the Latin country will strike back at the U.S. protectionist revisions of the U.S.-Venezuelan Trade Agreement. Aiken's report, although drawing interest in the Senate committee, is not considered powerful enough to cause any change of thinking in Congress on the oil import program.

•

The U.S. Supreme Court has set a new deadline for filing appeals in the Consolidated Edison gas transportation case. Appeals now must be in by Mar. 1—a one-month extension. Requests for more time came from the government's Solicitor General, representing the Federal Power Commission, and from coal interests. The Supreme Court must decide whether FPC is empowered to determine the proper end use of natural gas—in this case, whether gas should be used to fire boilers. FPC refused Transcontinental Gas Pipeline Corp. permission to transport the gas for Con Ed. A federal appeals court overruled the commission, stating that the commission lacked authority to regulate end use of gas.

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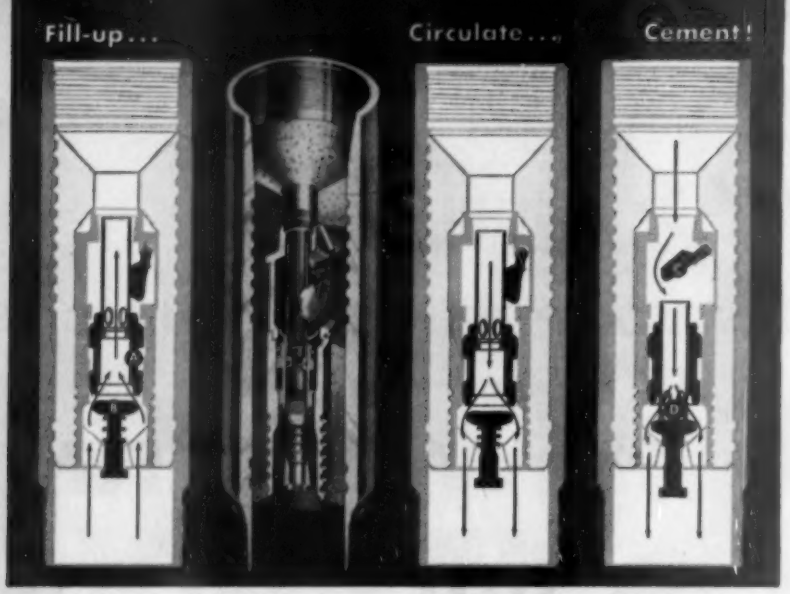

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Ⓑ Valve Seat

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Fig. 3 Before cementing, the flapper valve is placed in operation by dropping a tripping ball and applying pump pressure.

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Walnut-Shell Screens Stop Sand-Ups

Prepacked sand screens are proving effective in controlling the troublesome problem of sand production in oil wells.

The screens, developed by the Dowell Division of Dow Chemical Co. and trademarked "Sandban," have been tested in nearly 100 wells during the past two years. About 75% of the applications have been made in the last six months.

Almost 90% of the testing has been in Louisiana Gulf Coast wells, including many offshore. Other tests have been made in South Texas and northern Louisiana, and, to a very limited extent, in Oklahoma and Canada.

Says a Dowell spokesman: "Since the use of Sandban screens is now recommended for most wells with production from unconsolidated sand formations, their acceptance can be anticipated in many parts of the country."

The screens are composed of two concentric slotted pipes. The annular space is packed with a highly permeable network of plastic-coated walnut shells.

The screens come in minimum lengths of 10 ft. and can be coupled together to span thicker producing sections.

Both internal and external pipes have horizontal slots at ¾-in. intervals along their entire length (pictures). The slots are ⅛ in. wide and 2 in. long.

In the external pipe, there are four or five vertical rows of slots, depending on the diameter of the pipe. In the internal pipe, there are two rows.

Three ready-made screen combinations are available: 4-in. OD with 1½-in. internal steel pipe; 5 9/16-in. OD with 2⅞-in. internal steel pipe; or 5 9/16-in. OD with 2-in. internal aluminum pipe.

Other sizes can be made to order.

The larger screens are provided with both steel and aluminum internal pipes to facilitate attaching tubing as the operator chooses.

The external pipe is of aluminum composition. This has two advantages: (1) Slots do not corrode and plug, but enlarge slightly over a period of time as a result of chemical action; and (2) they can be drilled easily if it becomes necessary.

Sand-ups are prevented by the porous network of walnut shells, but fluid production is not hindered.

The shells and plastic (a thermo-setting synthetic resin) are the same materials used in the "Sandlock" process—a method previously developed by Dowell for controlling sand production by displacing the plastic-coated shells into the formation, where they are thermally set by the well temperature.

PREPACKED SCREEN, which measures 10 ft. in length, is run in a Louisiana well.

CUTAWAY shows walnut shells packed in the annular space between slotted pipes.

Various grades of walnut shells were tried in prototype models of the screen. A mixture of 40% 10/20 mesh, 40% 20/30 mesh, and 20% 35/80 mesh was found to be the optimum blend and is now being used almost exclusively.

After they are coated with plastic, the shells are a sticky mass that has about the same consistency as wet sand.

This aggregate is packed into the annular space, where it is molded under heat and pressure until cured into a stable, consolidated network.

So far, Dowell has handpacked all of its screens at its Houma (La.) installation. But plans are under way to install mechanical packing facilities.

The shell network has proved highly durable under downhole conditions, with no instances of extensive abrasion damage or cut-out.

One example of the durability is the case of a well in Bay St. Elaine field, southern Louisiana.

The well, in which a 10-ft. Sandban screen was installed opposite perforations at 7,948-52 ft., was potentialed for 500-million cf/d of gas plus 7% to 10% water at 3,200 psi.

Because gas production wasn't wanted, the screen was retrieved, and a lower pay section was perforated. Although the screen was subjected to the abrasive action of sand at high velocity while in the gas-producing interval for 24 hours, it showed no signs of erosion when it was pulled and examined.

Compressive strength of the shell mass is from 1,500-2,000 psi. Tensile strength is about 150 psi.

The prepacked screens have a "success ratio" of about 90%. All failures have been mechanical.

Any screen that has had to be pulled during its two-year period of use has been considered a failure. Five screens were pulled because of float shoe failure, and two were pulled because the operator failed to set packers, which allowed the screens to "crawl" uphole.

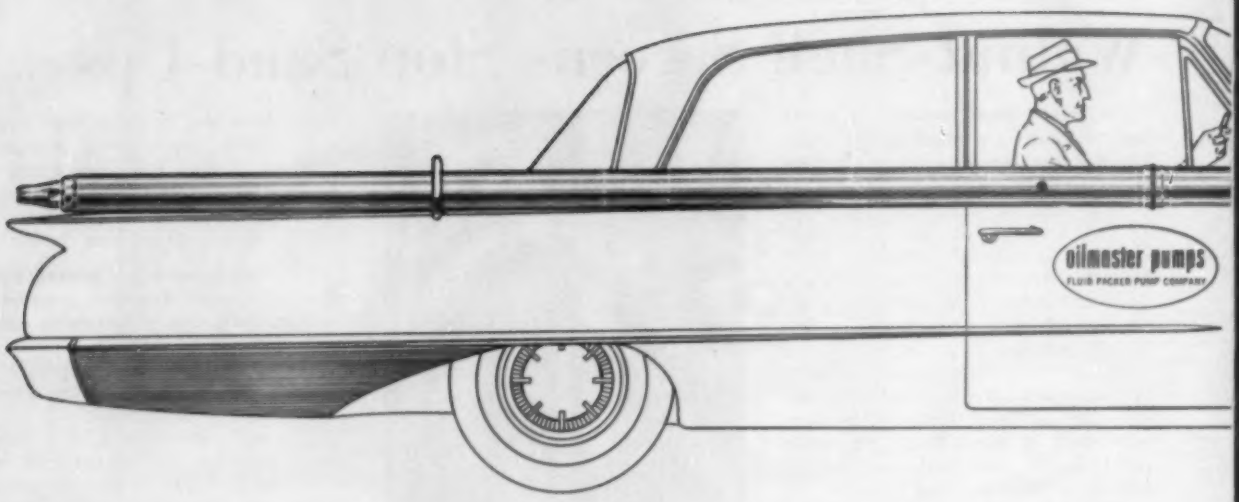
The maximum interval produced through a "Sandban" screen so far has been 40 ft. The average producing interval is 15 ft. No multiple completions have been tried.

The screens are run into the well on the end of a tubing string, an operation requiring neither service company equipment nor personnel.

Generally, the screens can be applied by any of the usual methods.

Methods by which the screens have been run include:

- Attaching blank pipe and liner packer above the screen and then lowering the assembly into position and setting packer.
- Setting the screen on bottom with blank pipe above and without liner packer.
- Placing the liner on bottom with blank pipe above it and packing



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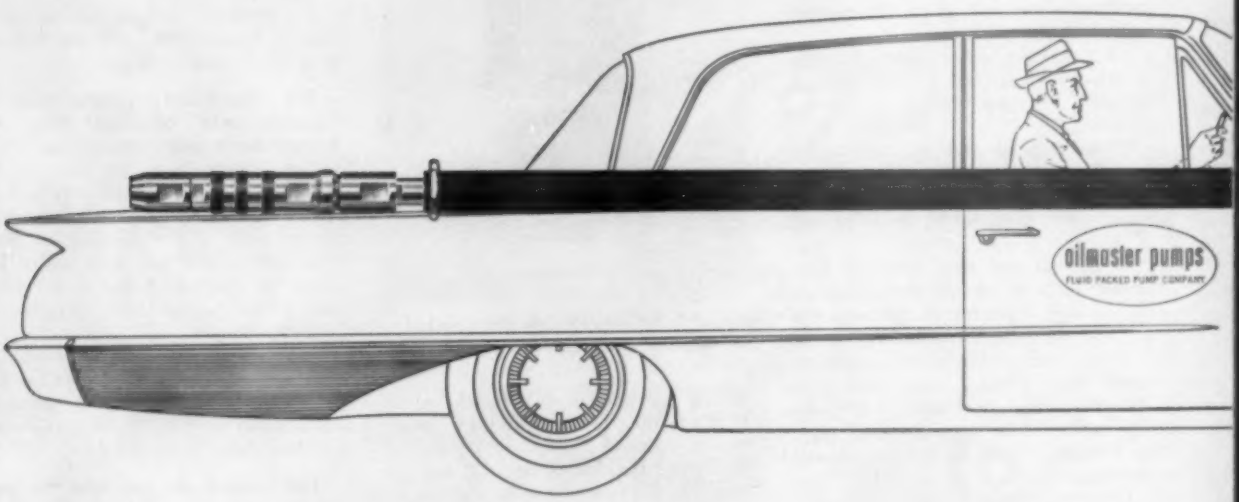
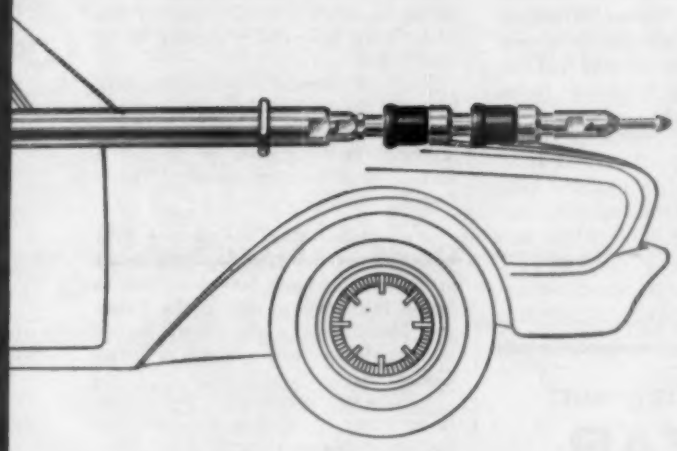
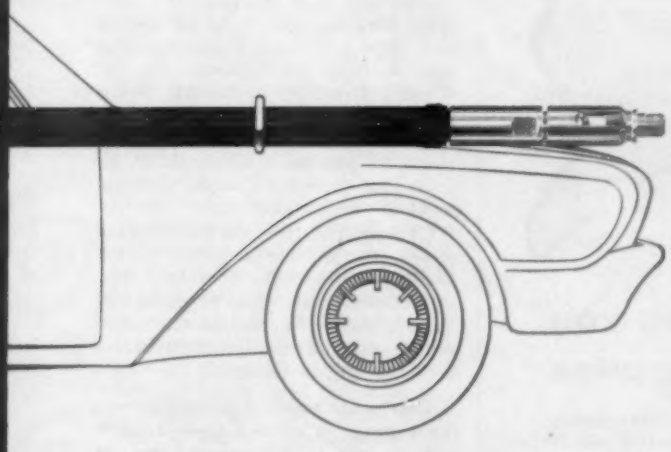


Oilmaster—the acknowledged leader



Rod Pump?

Guess again—This Fluid Packed Pump Co. field service car is delivering one of the new OILMASTER Subsurface Hydraulic Production Units. From outward appearance rod pumps and hydraulics look alike, but keep watching these OILMASTER cars closely and you will see an increasing number carrying the hydraulic. If you are operating subsurface hydraulic pumps now, or are considering a future hydraulic installation, ask your Oilmaster sales representative about the many outstanding features of this unit. Look at the specification sheet and compare the capacity, the pressure requirements, and the variety of models with other subsurface hydraulic production units. Then ask your Oilmaster sales representative about field service and on-the-spot repair in well equipped, strategically located pump shops.



You're right, it's this one! It's the same Fluid Packed Pump Co. field service car, but on this trip it is carrying an OILMASTER Sucker Rod Pump—The pump that has set the standard by which other pumps are judged. If you are talking hydraulics with your OILMASTER representative, don't forget he also can help you with a complete line of rod pumps and accessories including such OILMASTER firsts as the Three Tube Fluid Packed Pump, the One-Piece Hardened and Honed Barrel, the incomparable Unit Barrel, the Independently Landed Parallel String for Dual Zone Installations, the Ratio Compound Pump, the Tungsten Carbide Seat and Ball and the Vertical Setting Pump Anchor.

For more information on the new OILMASTER Hydraulic write for Bulletin E-5903.

in pumping fields the world over

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the annular space between screen and casing with sand.

A large percentage of the screens have been run in previously produced wells, following workover operations brought about by sand-ups.

A well in Golden Meadow field, southern Louisiana, for example, was perforated at 8,718-26 ft. Before sanding up, it produced for several months at the rate of 303 b/d of gross fluid, of which 70% was water. Following workover, a 10-ft. screen was run. After producing for seven months, the well gauged 638 b/d of fluid, with 85% water and no sand.

Resume Talks on Far North Rules

Efforts of the Canadian government and the Canadian Petroleum Assn. to reach agreement on a new set of regulations for oil and gas activity in the Far North appear to be nearing a final stage.

Alvin Hamilton, Northern Affairs Minister, and the Northwest Territories Committee of CPA resumed talks last week aimed at hammering out points of difference between the two groups.

First reports indicate agreement was reached on lease selection and the securing of royalties for 21 years. A few undisclosed differences remain to be ironed out.

The government's initial position became known last May. Several exchanges followed, and CPA submitted its brief in December to provide a further basis for negotiations (PW—Dec.30'59,p26).

It's possible that the current talks between the two groups could result in the government taking action to insure that natural gas in the Yukon and Northwest Territories will be on a competitive basis with gas in British Columbia.

CPA is urging a revision of the rules in an effort to equalize the incentive for gas development in the three areas.

Under present federal territorial regulations, a large percentage of lands surrounding any gas discovery that might be made would be turned into Crown Reserve.

But in British Columbia, where commercial gas discoveries have been made in the northeast corner, operators benefit from gas license regulations.

One operator says:

"Through the use of gas licenses, a producer can progressively earn larger land interests if he conducts a continuous drilling program, since these earnings are dependent on the depth and number of commercial gas wells drilled.

"The incentive provided by the ability to increase assets leads to activity that contributes to the development of the reserves."

CPA particularly urges the adoption of the same gas license system for the southwest part of the Northwest Territories and the adjacent southeast Yukon, since both areas are near established gas production and outlets in northeast British Columbia.

One major point of contention was the manner in which Crown Reserve leases would be offered and the size of the leases.

The government has suggested three ways: (1) by bid as in Alberta, (2) for the highest gross royalty, or (3) for a fixed royalty in addition to a bonus.

The industry, which earlier sought a block or quasi-concession system, takes strong exception to the latter two alternatives. Both of these, say oil men, are not economical, and would invite promoters, who would take the land in hopes of farming it out to legitimate operators.

This kind of deal, says CPA, could

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lead to both the industry and the government losing out if the promoter failed to farm the lease out, and subsequently abandoned it.

CPA, which more or less agrees to the Alberta bid system, recommends increasing the maximum size of lease blocks from the present 3x5 or 4x4 sections to 4x6 or 5x5 sections, with the minimum staying at ¼ section.

In addition, CPA would like to see a bonus system that would enable an operator to get more than 50% of a permit for active drilling. Depth of drilling would, of course, be taken into account.

The release of geophysical data is another point around which CPA has rallied.

The release of geophysical information has been strongly opposed by the industry, which feels that such action would lead to the destruction of incentive and would hinder development.

The operators agree with the system of filing this information with the government, but want it to be kept confidential.

Portable Rig Uses Either Air or Fluid

A new type of lightweight rotary drilling unit that permits use of either air or fluid as a circulating medium has been introduced by George E. Failing Co., a subsidiary of Westinghouse Air Brake Co.

The new model FP3, developed by Failing to fill an intermediate position between its 1,500-ft. and 2,500-ft. models, is rated for depths to 2,000 ft., with 2⅞-in. drillpipe.

It has several innovations, not previously offered by Failing.

The protoype unit shown in Tulsa was truck-mounted, but Failing says the rig is suitable for mounting on either truck, trailer, or crawler, and can be driven from a truck engine or auxiliary power source.

The truck-mounted version weighs 45,280 lb. minus drillpipe, and is priced at about $50,000 fully equipped.

Both the air compressor and the mud pump are mounted on the unit. Thus, they are immediately accessible for air or fluid drilling.

The switchover from air to fluid drilling is accomplished by opening and/or closing two valves and by changing connections on the rotary hose. The latter is primarily a safety precaution to prevent possible flowback of mud into the compressor.

Reciprocating-type mud pumps available with the rig come in sizes of 5x6-in., 5x7½-in., and 5x8-in. A centrifugal-type pump also can be used.

Both of the two models of air compressors available with the unit are air-cooled, six-cylinder, reciprocating types rated for 600 cu. ft. per minute at 120 psi.

Other features of the new rig include a 30,000-lb. chain pulldown, retractable rotary table, air controls, two-speed draw works, ten-speed transmission, and hydraulic leveling jacks.

The FP3 is the first rig of similar capacity to be equipped by Failing with a chain pulldown. This, says Failing, provides smooth operation.

The retractable rotary table, which is hydraulically withdrawn under the rig floor when not in use, facilitates running of casing and other nonrotating, over-the-hole jobs.

TRUCK-MOUNTED unit, developed by George E. Failing Co., comes equipped with both an air compressor and a mud pump to allow the choice of a circulating medium.

With the truck-mounted rig, the rotary table is driven from a power take-off from the truck transmission. The ten available speeds are achieved through a gear arrangement and provide sufficient flexibility to drive the table under almost any operating conditions.

A sub-drive case provides power for other rig components.

Hydraulically operated leveling jacks (two in the rear and one in the front) maintain stability, and prevent excessive weight from being placed on the truck's springs and tires.

The unit is expected to find its greatest acceptance in shallow production work and in core drilling.

One "natural" application, Failing believes, will be in the development of shallow waterflood properties. The possibility of drilling alternately with air and with fluid offers unusual flexibility for this type of work, Failing says.

The maneuverability of the single unit also will be advantageous, says Failing, even though a second vehicle is required to transport the drillpipe.

A traveling rotary head—which Failing expects to show soon—will prove beneficial in core drilling, the company says. The head, which will travel on a stationary kelly, will eliminate the necessity of taking the bit off bottom when making connections.

Another feature is a fast, new method of repacking the rotary swivel in which the rubber packing is reached by sliding upward a steel sleeve that is held in place during drilling by a coil spring.

Tree Farming: A Profitable Sideline

TREE FARM in North Louisiana is operated by Arkansas Fuel Oil Corp. Farm is one of many the company has developed on its idle lands, creating new sources of revenue.

Arkansas Fuel Oil Corp. is typical of oil companies that are turning a net profit, building goodwill, and gaining other benefits by utilizing idle company lands for forestry.

The Shreveport (La.) company has found that trees and oil make a happy combination, provided the land is suitable for growing salable timber and large enough to warrant real effort.

AFO's excursion into forestry on its acreage in Texas and Louisiana is not unique. Several companies, including United Gas Corp., also have such programs in effect in that area. It can, however, be taken as typical of the diversified—often unusual—functions undertaken by some oil companies.

AFO moved into forestry in a big way just three years ago, though it's been conducting forestry operations since World War II.

The company management became interested in forestry when wartime demands sent timber prices climbing.

Initial work was carried on by consulting foresters. But as the value of the investments continued to grow, AFO hired a full-time forester—Lee S. Mudd.

The company then took an inventory of the type and amount of timber standing on its lands—14,200 acres owned in fee. This was done in 1957. It showed that the company lands were capable of supporting five times the timber then existing.

The company's lands are located mostly in Louisiana's Bossier, Caddo, and Terrebonne Parishes, and in Harris and Montgomery Counties, Texas Gulf Coast.

In 1958, the company planted its first pine seedlings in a program to reforest all of its barren land.

A total of 343,000 seedlings were planted. The cost of this planting is estimated at about half the return from one year's growth.

The funds needed to carry out the forestry program are obtained from

BULLDOZER cuts fire lane through tangled brush as part of AFO program to clean up and improve existing timber areas. Lanes also open territory to hunters.

YEAR-OLD PINE sapling is planted in open area. It'll mature in 12 years.

sales of timber. Present value of standing timber is about $200,000. Between 1948 and 1957, a total of $102,688 was realized from timber sales.

Pines grow rapidly under favorable conditions, producing pulpwood in 12 years, and saw logs in about 25 years, according to Mudd.

Another major part of the reforestry program involves the removal of "weed" trees, and other site improvements.

These weed trees are the culls of bygone logging operations. Their removal opens the way for growth of merchantable stock.

In addition to these culls, all hardwoods are removed, since they shade out the more valuable pine growth. Some of these hardwoods are sold. The remainder are poisoned—by injection of chemicals.

More than 1,100 acres have been cleared of such weed trees in 1959. The sale of about 1-million board-feet of hardwood, 200,000 board-feet of pine, and 400 cords of pulpwood in 1959 was largely due to these clean-up and improvement activities.

The company also must clear some thicket areas by bulldozer, construct fire lanes, and open up choked drainage areas to speed up the flow of water off flatlands. These natural benefits have also been a great aid to the hunters permitted on the lands.

The forestry program has increased the value of the land, improved public relations, and created new jobs in AFO's marketing area.

The Louisiana Forestry Commission says the land appreciates in value at the rate of $15 per acre at the time of tree-planting.

A natural outgrowth of the land improvement program is conservation, a factor that creates immeasurable goodwill, and demonstrates to the public that AFO is conservation-minded.

CHEMICAL INJECTION kills "weed" tree, permits growth of desirable stock.

Flood Valve Aids Pumping

A flood valve that is said to insure complete filling of the production pump at the top of every upstroke is a unique feature of a new subsurface hydraulic production unit.

The flood valve is part of the Oilmaster subsurface unit, which is manufactured and sold by Fluid Packed Pump Co., of Los Nietos, Calif., since last April a division of National Supply Co.

Here's how the flood valve works:

On the upstroke, flood ports in the polished rod enter the pump packoff. The chamber below the packoff contains production fluid at suction pressure; the chamber above holds clean spent power oil at pump discharge pressure. On the last inch of the upstroke, the flood port moves above the packoff, and clean spent power oil flows through the flood ports, through the hollow rod and pump plunger, and past the flood check valve.

Thus, during the last inch of the upstroke, any unfilled area in the pumping chamber is automatically filled before the downstroke begins. In wells where pump efficiencies are normally high, only a small amount of flooding takes place. In wells where pump efficiencies are low because of low fluid level or the presence of gas in the produced fluid, or in installations under a packer where all gas must be produced, the amount of oil flooded may approach the volumetric capacity of the pump.

Longer unit life and greater freedom from corrosion are among the advantages claimed for the new unit.

Since the pumping chamber is completely filled while the unit is making the top reversal, no fluid pound will occur. Hence, shock loads are greatly reduced, and the service life of the unit is said to be substantially improved.

Since any gas present in the produced fluid is dissolved in the spent power oil, all free gas is eliminated from the pumping chamber at the completion of the downstroke. This enables the pump intake valve to open promptly at the start of the upstroke.

Flooding also provides clean oil lubrication to the pump plunger. A portion of the discharge of the flood check valve is gathered in a ring at the bottom of the plunger, and the clean oil trapped in this ring is fed into the close fit between the barrel and plunger during the downstroke. Since the slippage is clean oil, rather than sand or water, barrel and plunger life are said to be greatly extended, and corrosion minimized.

There are four principal types of installations—two using conventional pump units, and two using free units.

The conventional unit is connected to and lowered into the well on a string of power oil tubing.

In the conventional insert installation, the unit and power oil tubing are run inside a string of production tubing. The exhaust power oil plus the production is returned to the surface in the annulus between the power tubing oil and the production tubing, while the separated gas rises in the casing annulus.

In the conventional casing installation, the unit and power oil tubing are run in the casing and seated on a packer. The exhaust power oil and the production returns to the surface through the casing annulus. No gas separation is possible, since any gas entering the well bore must be pumped with the well fluid.

The free unit has no mechanical attachment to the power oil tubing. It is equipped with a pair of inverted cups so that it can be circulated in or out of the power oil tubing.

In the parallel free-pump installation, a large and a small string are run in parallel. The large string serves as the power oil string, while the smaller string returns the exhaust power oil plus production to the surface. The annulus between the parallel strings and the casing is used for separated gas to rise to the surface.

In the casing free-pump installaton, a single string is run to serve as the power oil string. Exhaust power oil and production are returned to the surface in the annulus between the power oil tubing and the casing. No gas separation is possible, since any gas entering the well bore must be pumped with the well fluid.

In addition, the conventional insert installation or either free-pump installation may be converted to a closed power oil system by using a special bottomhole assembly and supplying an additional string of tubing. In the closed system, the exhaust power oil is returned to the surface separately from the production.

Approximately 100 of the new units are now in use.

First field test of the unit was in California's Santa Fe Springs field, in August, 1956. Active marketing began in November, 1958, and the units are now in operation throughout several states.

The unit is said to be so successful that the company is virtually engaged in a crash program of manufacture.

What's New / IN EXPLORATION, DRILLING, PRODUCTION

Plugging will begin soon of the first 105 of about 4,000 water-injection and oil wells on the site of a flood-control project in northeast Oklahoma.

Most of the 4,000 wells, which are located in the Oologah Reservoir Basin of Rogers and Nowata Counties, have an elevation below 651 ft. This level will be the top of the flood-control lake, which will begin to form next winter behind a new dam across the Verdigris River. The wells date back to the early 1900s.

•

The streamlined method of serving representatives of the Midland Oil Scouts Assn. is reported working successfully.

The method, in use since November, has cut in half attendance at the weekly scout check meetings. Time of the meetings also has been reduced by about 75%.

The main function of the organization is to assemble and exchange information on West Texas wells, and to catalogue drilling samples. Under the new method, reporting and discussion of information at meetings is limited to wildcat operations. Field well information is supplied by printed reports and records.

It's expected that some or all of the methods used by the Midland group will be adopted by other scout groups.

•

The American Assn. of Oilwell Drilling Contractors has begun efforts to use university petroleum engineering students in research programs.

M. M. Brantly, of Midland, chairman of AAODC's rotary drilling committee, says a coordinating committee is being formed to work out details of the project, which he terms "the most important in sight this year."

Brantly adds that AAODC committee members lack the time to handle details involved in research work, and that the students offer "interested and able" manpower.

•

The city of Santa Barbara, Calif., will study the possibility of drilling directionally from its beaches to tap offshore oil reservoirs.

Beaches owned by the city extend from Santa Barbara, down the coast near Summerland, where Standard Oil Co. of California is planning to put its second offshore platform 1¾ mi. offshore (PW—Oct.30'59,p18).

The city's announcement is a reversal of its previous stand—strong opposition to drilling on the beaches.

•

The Alberta government received $931,449 last week for drilling reservations on 79,770 acres scattered throughout the province.

Texaco Exploration Co. and Texaco Canada, Ltd., made the high bid, paying $252,517 for a 7,200-acre parcel in the Pembina area.

•

Standard Oil Co. of Texas has paid $1,055,767 for 17 leases in Lake Sabine, at Port Arthur, Tex.

The leases, which run for five years, cover 11,867 acres.

•

Sohio Petroleum Co. is closing its Northwest Division office in Billings, Mont.

Sohio says the move is being made as part of its program "to increase the effectiveness of oil and gas exploration efforts."

The company's production headquarters will remain in Oklahoma City.

•

Pan American Petroleum Corp. is consolidating its East Texas operations to make Tyler district headquarters for both exploration and production.

Personnel and functions of the district production office at Longview will be shifted to Tyler, where the company's present district exploration office is located. The Henderson area office will be closed, and its personnel and functions moved to Longview.

•

Engineering

A new wide-base, "slant-legged" platform for drilling in waters to 150 ft. deep has been developed by R. G. LeTourneau, Inc.

The company says the offshore platform can be built for about the same cost as a "straight-legged" type. LeTourneau expects to build the first

North Dakota Sets Spacing Precedent

Last week's order setting 320-acre spacing in a North Dakota oil field—said to be the first such action in the U.S.—is based on "tremendous advances" in reservoir engineering and technology.

The order was made for the newly discovered Rough Rider field, McKenzie County, at the request of Shell Oil Co. Production is from the Madison formation.

In finding that such action would result in "the efficient and economic development of the field as a whole," the commission said: "Technical and engineering knowledge relative to the mechanics of oil and gas reservoirs has made tremendous advances . . . Previous spacing practices in a less enlightened era should not be allowed to prevent the application of this new knowledge to present producing reservoirs."

The order was made effective for 18 months, with the following qualification: "Should additional information indicate that the field is not being efficiently and adequately drained, additional wells may be drilled."

On Feb. 17, the commission will rehear a Hunt Oil application for similar 320-acre spacing in the West Tioga area of Williams County, just north of McKenzie County.

The commission in late October denied Hunt's original request (PW—Dec.4'59,p36) and then agreed to a rehearing (PW—Jan. 15'60,p28).

Hunt said that the 320-acre spacing would make it possible to recover 8-millon bbl. of additional oil from the area, which comprises about 17,000 acres and six producing wells.

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slant-legged platform this year. The company adds that the new platform can be modified for greater depths.

R. L. LeTourneau, company vice-president, announced three years ago that his company had worked out a practical design for a slant-legged platform for drilling in water 600 ft. deep (PW—Jan.18'57,p20).

•

Schlumberger Well Surveying Corp. moved this week into the field-development phase for its new sonic tool, designed to free stuck drill pipe.

The company reports that it has been working on development of the unit for about three years, and now has equipment available for field testing and evaluation. The tool is not yet available for commercial use.

Schlumberger has developed two variations of the tool. One is a vertical oscillation type which is skid-mounted and diesel-powered. The other is a torsional type powered by the rotary.

•

Drilling Highlights

East Texas—Pan American Petroleum Corp. and R. J. Caraway No. 1 W. A. McCoy, James Cheshire survey, Van Zandt County, was triply completed in two oil zones of the Rodessa (Lower Cretaceous) and a gas-condensate zone in the Cotton Valley (Jurassic). The well flowed 113.6 b/d of 42.6-gravity oil through 18/64-in. choke and perforations at 8,184-94 ft. in the Rodessa; 215 bbl. of 40-gravity oil in 13 hours through ¼-in. choke and perforations at 8,286-93 ft. in the lower Rodessa; and an estimated 10-million cf/d of gas plus 12 bbl. of 56-gravity condensate per million through perforations at 10,522-32 ft. in the Cotton Valley. In addition to being the first triple completion on the west side of the East Texas district, the discovery also is the first from the Cotton Valley for the area. Nearest Cotton Valley production is 90 mi. east.

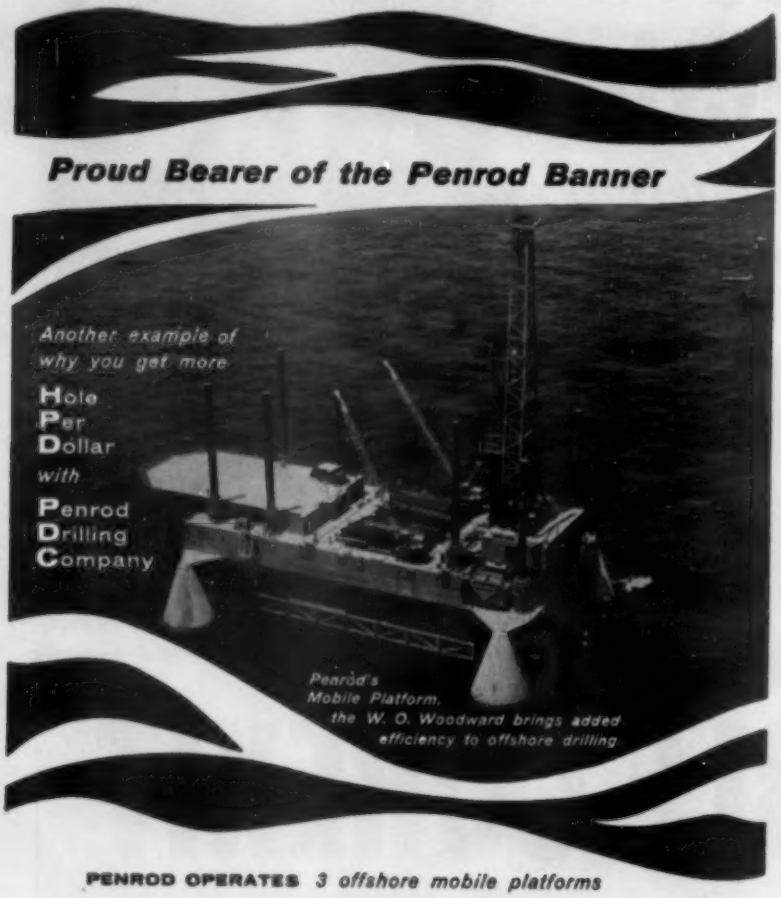
In Rusk County, E. O. Meadows No. 1 Concord Baptist Church, James B. McNealey survey, was completed for 345 b/d of oil on the pump through perforations at 4,404-32 ft. in the Woodbine. The discovery revives production from the Concord Dome, which produced briefly in the early 1940s.

Montana—Mobil Oil Producing Co. No. F-44-20 P Mueller, section 20-32n-59e, Sheridan County, was completed for 51 b/d of 32.9-gravity oil and 39 b/d of water through perforations at 8,011-12 ft. in the Red River. The discovery is 35 mi. southeast of Outlook field, which is also in Sheridan County, and 25 mi. southwest of Writing Rock field, Divide County, N.D.

Colorado—Pan American Petroleum Corp. et al No. 2 Four Mile Creek Unit, section 33-12n-91w, Moffat County, flowed gas at the rate of 11-million cf/d on open flow through perforations at 3,612-18 ft. and 3,624-30 ft. in the Basal Lance. The wildcat is more than 1 mi. north of the initial discovery in the area, completed by Pan Am et al in a different section of the Basal Lance.

West Central Texas—Texam Oil Corp. et al No. 1 H. N. Smith Estate, Jones County, was completed as a Canyon Reef discovery for 240 b/d of 40-gravity oil through ¼-in. choke and perforations at 4,596-606 ft. The well is 2 mi. from reef production.

Montana—Winston L. Cox et al No. 1 NP, section 17-11n-31e, Musselshell County, was completed in the Amsden, a new pay for Ivanhoe Dome field, flowing 277 b/d of 31.9-gravity oil through 16/64-in. choke and perforations at 3,493-516 ft.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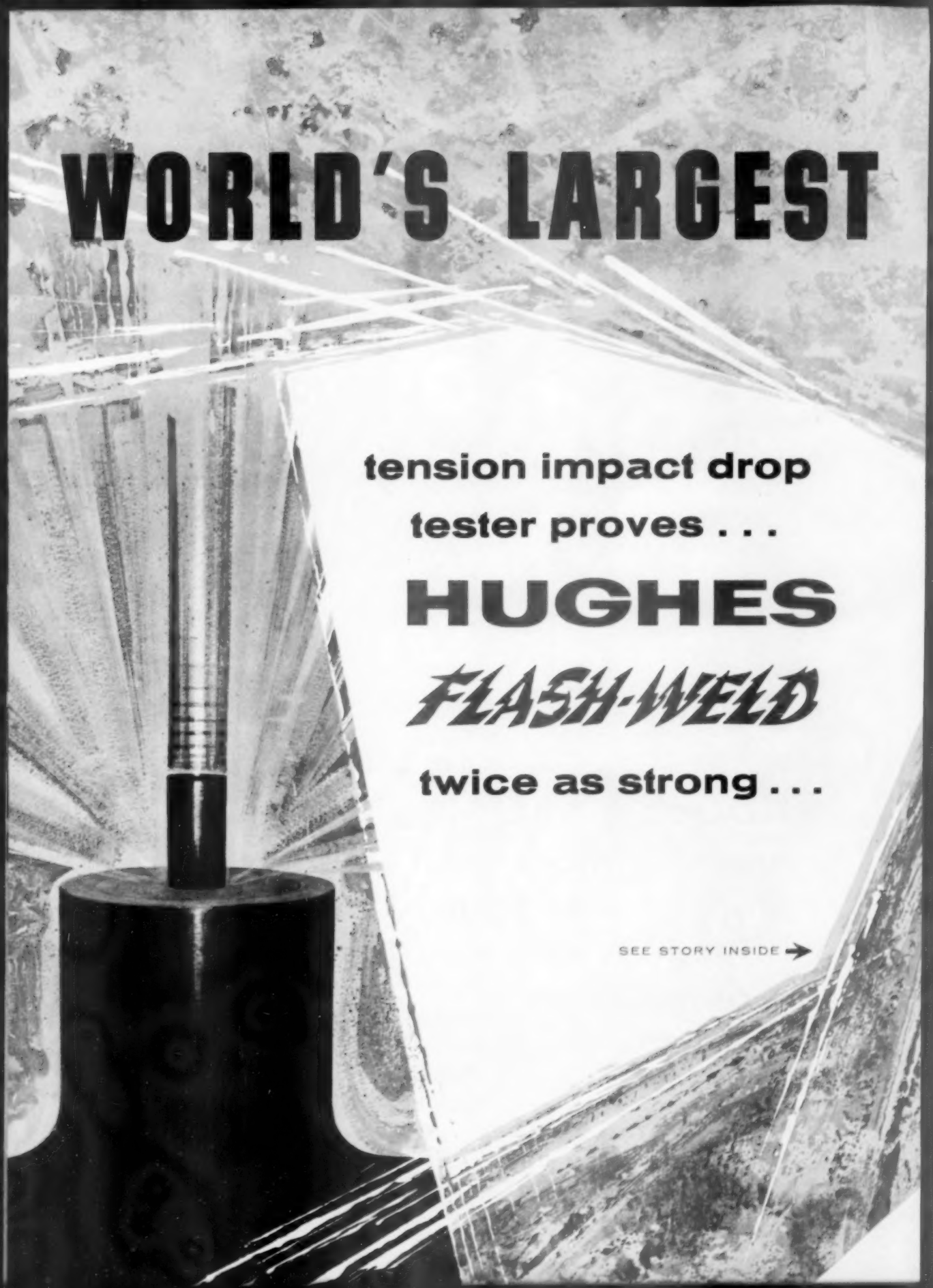
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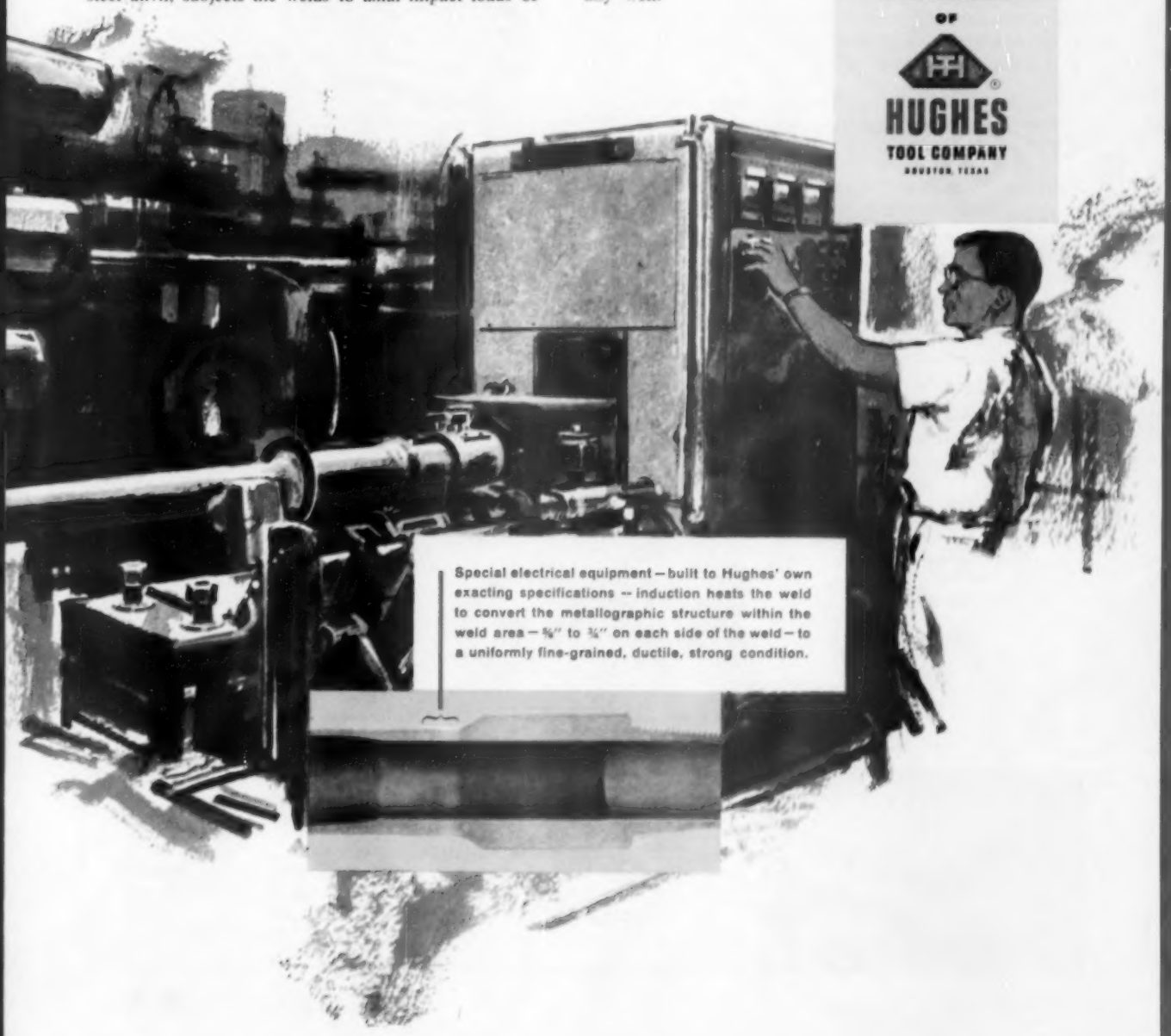
Magic Ring induction heat-treating more than doubles the impact strength of HUGHES "Flash-Weld" tool joint-to-pipe connections

Electronically-controlled inductor rings are used in the new Hughes heat-treating process to normalize and stress-relieve the weld area of "Flash-Weld" tool joint-to-pipe connections. This results in connections with metallographic uniformity across the weld never before available to the industry.

To fully evaluate the metallurgical properties obtained in the weld area by the new process, Hughes engineers developed the world's largest tension-impact testing equipment. A heavily weighted drillstem, dropped in a well and caught at the tool joint box shoulder in a steel anvil, subjects the welds to axial impact loads of more than 400,000 foot pounds. In more than 200 of these destruction drop tests—the severest to which welds have ever been subjected—not a single weld, heat-treated with the Hughes *Magic Ring*, was broken.

These important additions to the Hughes flash-welding process, plus other engineering and design features developed in unitizing more than 40 million feet of drill pipe since 1938, assure you the *most dependable* and *most economical* drillstem you can run in any well.

FLASH-WELD
A DEVELOPMENT
OF
HUGHES
TOOL COMPANY
HOUSTON, TEXAS



Special electrical equipment—built to Hughes' own exacting specifications -- induction heats the weld to convert the metallographic structure within the weld area—⅝" to ¾" on each side of the weld—to a uniformly fine-grained, ductile, strong condition.

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"This is the slogan adopted for oil's centennial year. It describes our industry well. Probably no other industry can boast the freedom for individual opportunity offered by the petroleum business.

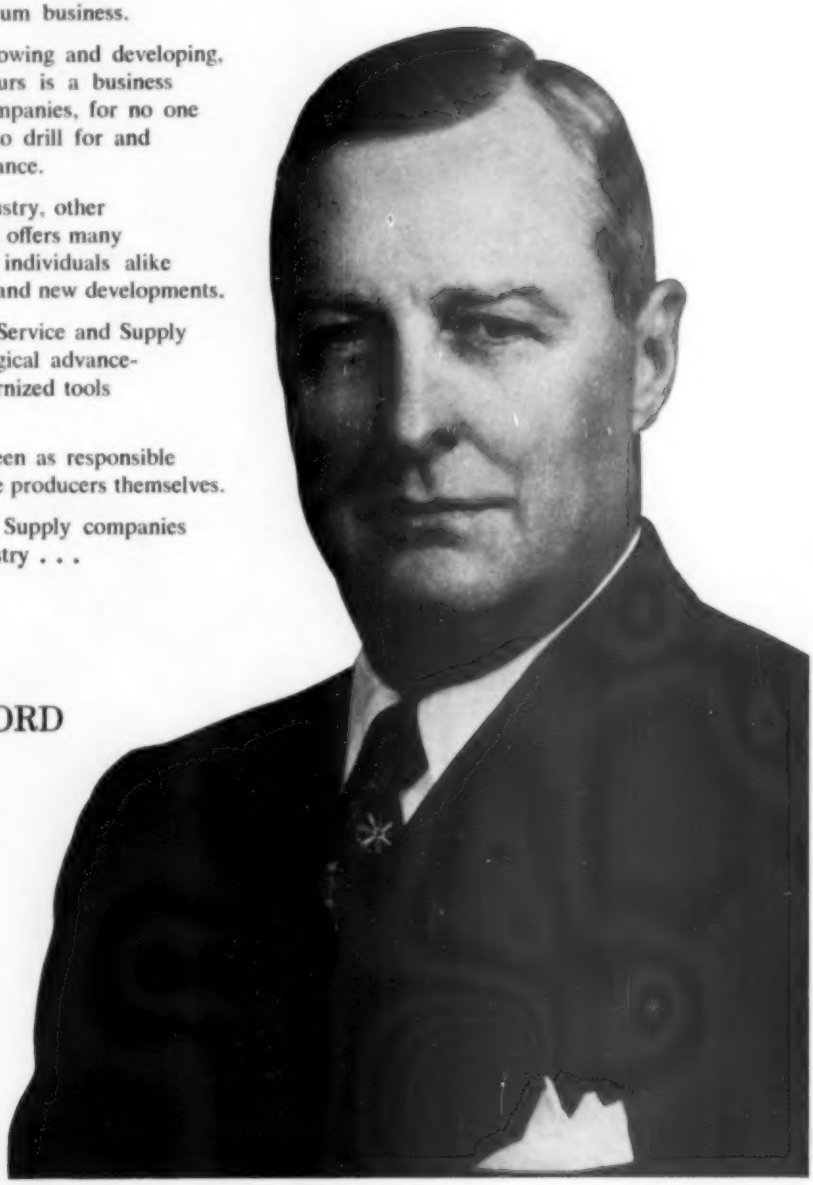
"Ours is a young business, still growing and developing, still inventing and progressing. Ours is a business comprised of many and varied companies, for no one producer is self-sufficient enough to drill for and produce oil and gas without assistance.

"Just as oil is important to all industry, other industries are important to oil. This offers many opportunities for companies and individuals alike to participate with ideas, processes and new developments.

"For instance, the Manufacturing, Service and Supply companies have given us technological advancements, better equipment and modernized tools to drill for and produce oil.

"In truth, these companies have been as responsible for the success of our industry as the producers themselves.

"The Manufacturing, Service and Supply companies typify the freedom of the oil industry . . . our progress is evident."



MR. W. K. WHITEFORD

President and Chief
Executive Officer
Gulf Oil Corporation

P.E.S.A.*

* PETROLEUM EQUIPMENT SUPPLIERS ASSOCIATION

PROUD TO BE PART OF A PIONEERING INDUSTRY

PETROLEUM EQUIPMENT SUPPLIERS ASSOCIATION

Early Use of TML Appears Unlikely

Refiners and manufacturers of chemical additives doubt that tetramethyl lead will, in the near future, be used as an antiknock additive in gasoline, either in conjunction with or as a replacement for tetra-ethyl lead.

This appears to be their consensus, following a re-evaluation of their former studies of TML, as a result of a of a recent announcement by Socony Mobil Oil Co. claiming certain advantages for TML (PW—Jan.8'60, p16).

TEL is one of a family of metallic alkyls. The other members of the family, including TML, have been under consideration as antiknock additives for the past forty years.

TML appears to have certain advantages over TEL as an antiknock additive under some conditions.

Among these advantages:

- It boosts the road octane rating of some of the gasolines that are high in aromatic components substantially more than does TEL.
- Because TML is many times more volatile than TEL, it distributes more evenly than does TEL the antiknock benefit of the additive among the various cylinders of the same engine.

"The use of TML," according to Socony, "will increase the ability of refiners to blend fuels more ideally suited to the needs of the motorists."

However, while these advantages may be of great importance to foreign gasolines, used in foreign cars, they are by no means so essential in the U.S., refiners say. Here's why:

- American engines are less sensitive to uneven distribution of the volatile components in the fuel, because of extensive use of automatic transmissions, and consequent higher manifold velocities.
- The structure of the fuels made in Europe tends to accentuate the knocking effect of uneven distribution much more than is the case in the U.S.
- The design of European cars emphasizes the uneven distribution of gasoline. U.S. cars are generally operated at higher speeds, which allows a better distribution of components of different volatilities.

Before commercialization of a new additive such as TML is possible, an extensive public health study would have to be conducted.

This is particularly important because of some indications that TML might be more hazardous to use than TEL. Recent research, however, has shown that, properly used, TML presents no health problems.

Whether or not the use of TML in gasoline in the U.S. is justified can be determined only after many technical and economical factors are known.

This conclusion seems to be the consensus of refiners and additive makers consulted by PETROLEUM WEEK.

The trends in car construction, in gasoline manufacture, in geographical differences in gasoline components, and in American driving habits, will be among the factors that must be considered.

For example, the reduction of olefin content in gasolines on the West Coast, in connection with the smog-control regulations, would substantially increase their aromatic content, percentage-wise, and therefore be favorable to the use of TML.

It is also generally believed that TML would be more expensive to produce than TEL.

The price of TEL was recently slashed by approximately 5% (PW—Jan.22'59,p53).

This factor would play an important part in any decision on introducing this new antiknock additive: The advantages resulting from its adoption would have to compensate for a higher cost to the refiner and to the driving public.

More Oil Goes Into Rubber Making

Much of the synthetic rubber made in the U.S. today is made, in part, of lubricating oil.

It is estimated that half of all the styrene-butadiene synthetic rubber is "oil-extended." One-third of the weight of this oil-extended rubber consists of lubricating, or light mineral oil.

This makes the synthetic rubber industry an even greater associate of the petroleum industry, from which it receives most of its petrochemical raw materials.

The practice of adding mineral oil to GR-S rubber, as synthetic rubber was formerly called, goes back as far as the end of World War II. The quantity of oil added at that time was on the order of 18.5 to 20 parts of oil to 100 parts of rubber. Around 1954, this was increased to 37.5 parts to 100. And today, the quantity of oil blended into the rubber is up to 50 parts of oil to 100 parts of rubber, or one-third of the total weight.

About 200,000 tons of oil, or about 1.5-million bbl., will be used in 1960 to make oil-extended synthetic rubber, according to a prediction by the Rubber Manufacturers Assn.

With a substantial increase in the production of synthetic rubber predicted for the next decade, the overall quantity of refinery products passed on to the rubber industry is due for a corresponding increase.

This increase will be both in the form of rubber polymers such as styrene and butadiene, and as mineral oil for oil-extended rubber.

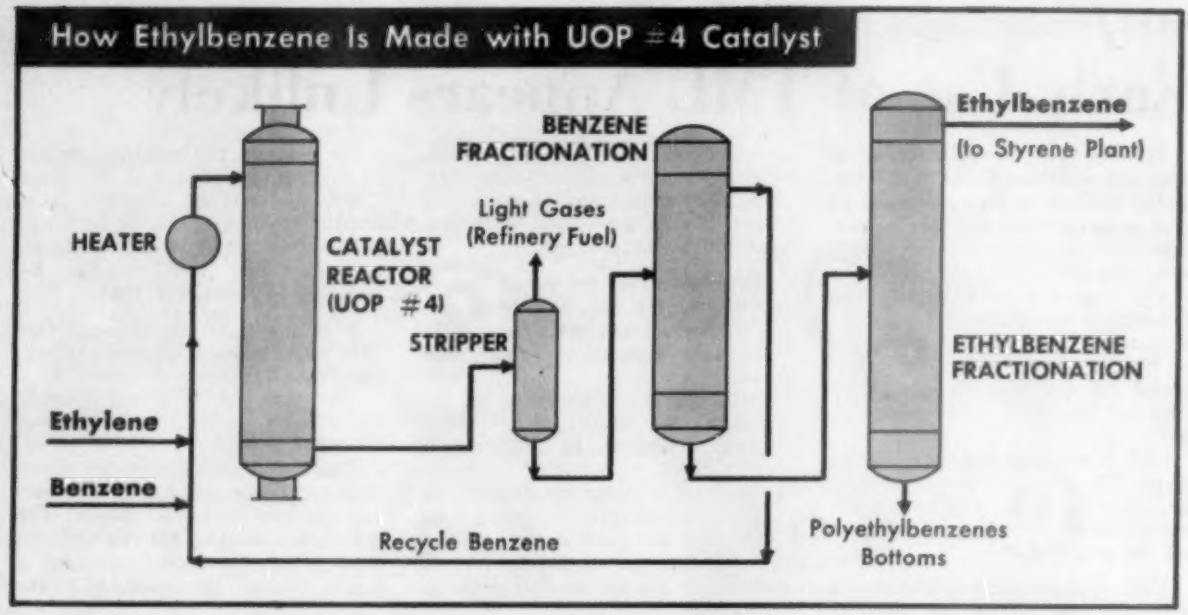
The purpose of extending synthetic rubber with oil is not so much to reduce its cost, but to give the finished product greater abrasion resistance, lower heat buildup, and better elasticity at normal temperatures.

This is particularly important in the manufacture of tires (treads and carcasses). But it is also applied to rubber used in shoe heels and soles, and a variety of other uses.

The theory of "oil-extension" can best be explained as a lubrication action. It prevents the formation of certain "secondary bonds" that have a tendency to form between adjoining molecules of the long rubber polymers, and which would reduce the rubber's quality, especially its elasticity.

When these secondary bonds form, the rubber is said to have a higher "hysteresis"—that is, a greater tendency to retain its deformations, instead of returning promptly to its initial shape. Heat would be required to break the secondary bonds, if oil were not used, to bring the rubber back from a sort of plastic state to a true rubber state. Heat is avoided in making the currently popular "cold variety" of synthetic rubber.

The oil is believed to act in a purely mechanical fashion to avoid the formation of secondary bonds.



Alkylation Catalyst Passes First Test

A new catalyst developed by Universal Oil Products Co. is being used for the production of ethylbenzene—the material from which styrene is made—at the Odessa (Tex.) plant of El Paso Natural Gas Co.

Ethylbenzene is produced by the catalytic reaction of benzene and ethylene. At El Paso, benzene is purchased from an outside source. The ethylene is made by cracking a stream of propane, which is piped in from one of the company's natural gas plants.

The catalyst, known as UOP #4, is a solid phosphoric acid type, which promotes both alkylation and polymerization reactions.

But, UOP explains, when used for ethylbenzene production, it has primary activity toward alkylation, and any undesirable polymerization side-reactions can be minimized. A simple fractionation suffices to separate whatever secondary products are formed from the ethylbenzene.

The catalyst accepts a wide range of feedstocks, so the ethylene need not be particularly pure.

The products obtained from the steam-cracking of propane are easily separated by simple absorption and stripping. Because of the great tolerance of the catalyst for impurities, it is not necessary to complete the separation of propylene from the ethylene by refrigeration, to obtain a strictly pure ethylene. This greatly simplifies operation and cuts initial costs.

The feedstock, a mixture of ethylene and benzene, is heated to a moderate temperature. It is then fed to the reactor, which is charged with UOP #4 catalyst (flow-chart). Light gases (methane and ethane) are separated from the effluent stream and piped to the company's nearby refinery, where they are used as fuel. Some benzene is fractionated, and recycled with the fresh feedstock. In a second fractionating column, the ethylbenzene is separated from the bottoms, mostly polyethylbenzenes.

El Paso used the first catalyst load for over seven months, and UOP reports that it maintained a high rate of ethylene conversion to the end.

The second batch of catalyst is now in operation, at a conversion rate of 96.5%, according to UOP. A better loading of the catalyst, in a quantity more appropriate to the capacity at which the unit is run, should prevent any material reduction of that conversion rate.

The styrene plant's nominal capacity is 40-million lb. of styrene a year. El Paso is now expanding that capacity, but has not revealed the size of its new facilities.

Part of the styrene produced goes to the Odessa plant of General Tire & Rubber Co. and to the Baytown plant of United Rubber & Chemical Co.; part goes to Seamco Chem-Co., in Holyoke, Mass., for the manufacture of clear polystyrene plastic.

Catalytic Muffler Fights Smog

A new catalytic muffler, developed by Universal Oil Products Co., is said to be capable of removing most smog-causing hydrocarbons as well as carbon monoxide from automobile exhaust gases.

The announcement of the new "Purzaust" muffler was made at a recent California Senate committee hearing on Los Angeles smog.

The Purzaust will not be difficult to install, and will not interfere with car performance, R. E. Sutherland, senior vice-president of UOP, told the committee. And, he said, its cost will be "reasonable"—not over $50 more than the cost of a conventional muffler.

Several other antismog devices have been suggested in the past. Some work on a catalytic principle, like Purzaust; others are afterburners, in which the gases complete their combustion. Common objection to these devices has been their excessive cost.

Another effective way of controlling emission of unburned gases to the atmosphere is to return crankcase blow-up emissions back to the engine. The automotive industry has agreed that such a device will be offered on all U.S. 1961 cars sold in California.

What's New / IN PROCESSING

Butadiene may make a better base for solid propellants for rockets than polyurethane, according to North American Aviation engineers.

Studies conducted by the firm's Rocketdyne Division show that butadiene propellants have greater resistance to tear and strain, less tendency to slump, and better casebonding capabilities than polyurethane.

Butadiene propellants might make it possible to manufacture rocket motors with a 2-million-lb. thrust, North American says.

•

A new type of palladium hydrogenation catalyst, developed at the University of Osaka, Japan, has silk as its carrier material.

It was described in three recent papers by Y. Izumi, in the Bulletin of the Chemical Society of Japan. At the same time, a nylon-palladium catalyst was prepared and assessed. The catalyst is said to be able to stand long storage periods without loss of activity. It seems to be particularly suitable for the preparation of saturated aldehydes and ketones from the corresponding unsaturated compounds. Aromatic C-C bonds are inert to this catalyst.

•

Texas Butadiene & Chemical Co. has concluded negotiations for a $39-million synthetic rubber and carbon plant in Argentina.

The plant, to be built at Puerto Deseado, will use natural gas from state-owned fields in Santa Cruz province, in Paragonia.

•

United Carbon Co. will form a French subsidiary and build a $5-million carbon black plant near Rouen, in north-central France.

The plant will have an initial rated capacity of 50-million lb. per year, and will be completed in 1961. At first, only the higher grades of reinforcing blacks will be produced, UC says.

•

Flame ceramics—spraying rare earth compounds through an oxy-hydrogen flame onto metal surfaces—is eliminating carbon deposits and varnish formations in diesel combustion chambers.

Armour Research Foundation, developer of the process, and Continental Coatings Corp., of Cleveland, have been testing the process on diesel pistons, sleeves, and valves.

Typical result, according to the companies: Diesel pistons coated with cerium oxide give from 50% to 100% longer service between overhauls.

•

Shell Italiana is adding a 20,000 b/d plant for the fractionation and extraction of aromatic solvents to its Rho refinery, near Milan. Shell owns the refinery in partnership with Condor S.p.A. The plant is slated to be on stream by the middle of 1961.

•

A $2-million styrene-butadiene latex plant will be built in the Netherlands by Dow Chemical International.

Dow's wholly owned Dutch subsidiary, Nederlandsche Dow Maatschappij N.V., will build and operate the plant at Rotterdam. Completion is set for spring of 1961.

•

Cosden Petroleum Corp. is expanding ortho-xylene facilities at its Big Spring (Tex.) plant.

Production of the chemical raw material is expected to exceed 70-million lb. per year when the work is completed in early 1961.

The expansion is made necessary by the growing demand for phthalic anhydride and isophthalic acid which are made from ortho- and meta-xylenes.

•

Columbian Carbon Co., and Continental Carbon Co. have announced plans to coordinate manufacturing facilities of their two major European plants.

Columbian Carbon has purchased an interest in Continental's new 25-million-lb.-per-year carbon black plant in Rotterdam, which will now be operated as Continental-Columbian Carbon (Nederland) N. V.

And Continental carbon has bought into Columbian Carbon's 60-million-lb.-per-year carbon black plant now under construction near Milan, Italy. This plant will be operated as Columbian Continental Europa S.p.A.

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DEPT/International

West Africa Offers New 50-50 Law

DAKAR—New incentives to explore for oil in West Africa under a new 50-50 oil law with a 27½% depletion allowance are now being offered by Senegal and Soudan, two of the area's youngest republics.

The two former territories of French West Africa, now autonomous members of the French Community, are linked as the Federation of Mali.

Their own new oil law was officially put into effect in January, following publication in Mali's Official Journal of Dec. 31, 1959.

The new oil law guarantees stabilized conditions for oil investment. It follows the Algerian Sahara law—but with important added incentives.

This is emphasized by the Federation's own Mines & Geology Service in a brochure analyzing the law.

The important differences, compared with the Sahara law:

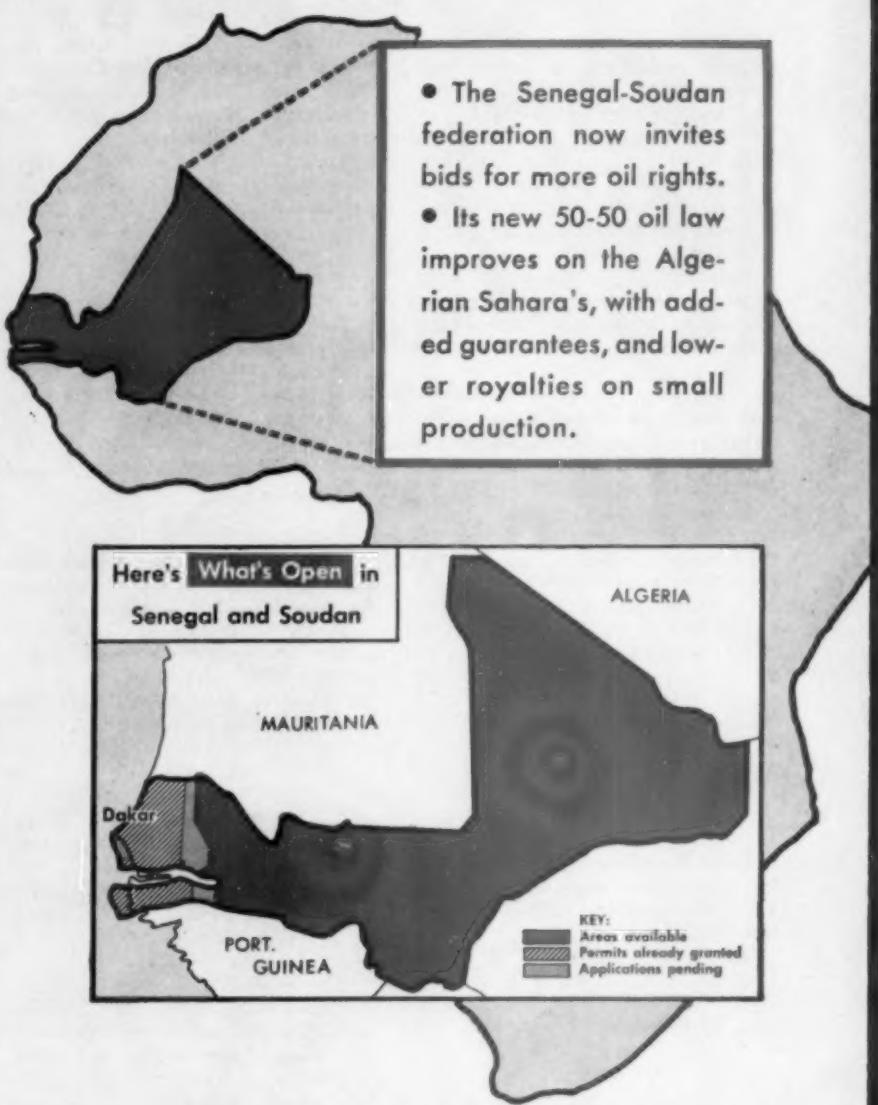
- A contract covering all aspects of exploration and production is signed when an exploration permit is granted—instead of when a development concession is awarded.
- International arbitration is provided for in case of disagreement over application of the contract. In the Sahara law, such disagreements are referred to the highest French judicial body.
- Royalties, as in the Sahara, are fixed at 12½% for oil and 5% for gas. But in Mali they'll be progressively reduced for annual production of under 20,000 b/d of oil or 29-million cf/d of gas.

Other terms cover duration of permits, royalties, and taxes. Among them:

- Exclusive exploration permits will be granted for five years maximum, with two automatic renewals for 3 to 5 years each. Area reduction is 50% on first renewal, and 25% of the remainder on the second.
- Development concessions are granted by decree for 50 years on application from the permit holder.
- Royalties plus income tax will make up the government's 50% of profits.

There is no tax if royalties exceed 50% of taxable income, and the excess is tax-deductible in subsequent years.

The depletion allowance, equal to 27½% of the value of production, up to 50% of net income, is tax-deductible for five years, but is subject to tax if not reinvested, or if distributed.


• The Senegal-Soudan federation now invites bids for more oil rights.
• Its new 50-50 oil law improves on the Algerian Sahara's, with added guarantees, and lower royalties on small production.
Here's What's Open in Senegal and Soudan
ALGERIA
MAURITANIA
Dakar
PORT. GUINEA
KEY:
Areas available
Permits already granted
Applications pending

- Taxes cannot be increased for 30 years after development starts.
- At the government's option, producers must give supply priority to the franc zone after meeting the needs of Mali, where demand is now close to 40,000 b/d.

Three groups currently hold oil rights in Senegal, where the first promising oil strike has just been made after seven years of exploration. The DN-4 wildcat was drilled 30 mi. East of Dakar by Soc. Africaine des Petroles (SAP), a company controlled by the French government. It flowed 52 bbl. of oil in two hours from 3,280 ft., after previously flowing gas from 2,625 ft. at the rate of 1.8-million cf/d.

Cities Service and Continental Oil recently joined SAP for joint exploration of its other two Senegal permits in the north, plus acreage in neighboring Mauritania.

Also exploring in Senegal: the French-British Soc. des Petroles du Senegal, owned 50% by British Petroleum; and Copetao, a new affiliate of Cie. Francaise des Petroles. All three have applied for further acreage.

There are no permits in Soudan, though Esso and others are taking a look at prospects there.

Battle of Fuels Forecast for Europe

Natural gas—and even nuclear energy—may move in with oil as new competitors for Europe's rising energy market by 1975. This shows up in a new forecast issued last week by the Organization for European Economic Cooperation.

The 125-page study—"Toward a New Energy Pattern in Europe"—re-estimates Europe's 1955-75 primary energy needs and potential supplies (table). It was drawn up by OEEC's nine-man Energy Advisory Commission. The report updates an earlier 20-year forecast prepared by OEEC's Hartley Commission in 1956.

There have been significant changes in the energy picture over the past three years. This is what the new report shows:

- New natural gas discoveries—in the Sahara, as well as France and elsewhere—are a potential source of low-cost energy supplies for Europe.
- Nuclear energy may move into competition with other energy supplies in 1970-75.
- Big new oil discoveries in Venezuela, West Africa, Libya, and particularly the Sahara, an area "more closely integrated into the economy of Western Europe," will be a source of additional energy supplies.
- Competition will continue keen among all fuels, with competitiveness of "relative prices" an important factor in what has already shifted from a sellers' market to a buyers' market.

The over-all conclusion of the forecast: If Europe can finance the imports required, no persistent long-term shortage of primary energy supplies is likely.

It has already proved possible in the past three years, the commission notes, to expand imports of oil, to substitute oil for other forms of energy much faster than expected—and to finance the additional foreign payments involved.

This is given as one major cause of the "profound change" from what once seemed a chronic shortage of primary fuels to the present keen competition among alternative fuels.

Further, a large part of future oil imports will come from the Sahara—an area from which imports "may prove relatively easy to finance."

Natural gas and nuclear energy each might meet as much as 10% of Europe's primary energy needs by 1975. Oil's share of the energy market will reach an estimated 35% to 39%.

For natural gas, the rise would mean a jump from a scant 1% of total primary energy demand in the 1953-58 period. (It was negligible before that.)

Nuclear energy has virtually started from scratch as an energy supplier. The commission predicts it will represent something like 5% of primary energy demand by 1975. It emphasizes that energy supply from this source "cannot exceed 10%" of Western Europe's probable 1975 fuel consumption.

Estimates are that crude consumption will reach between 200-million and 240-million tons in 1965, and 300-million to 390-million tons in 1975.

The total primary energy demand will increase an estimated 25% to 35% between 1955 and 1965, and an estimated 58% to 83% for the 20-year period covering 1955-75.

In terms of coal equivalent, this means a hike from 777-million tons in 1955 to 970-million to 1,050-million tons in 1965, and to 1,225-million to 1,425-million tons in 1975.

Whether oil demand reaches the maximum increases forecast will depend on what happens to the relative price of coal, according to the commission.

Its higher estimates (32% of total energy demand in 1965, and 39% in 1975) might "reasonably" be expected if the relative price of coal continues to rise, and if coal becomes progressively less competitive.

The lower estimates (30% and 35% respectively) may be expected if coal either maintains or improves its competitive position, the report says.

The commission also points out that oil demand has increased at about 3½ times the rate of primary energy as a whole.

"So rapid an expansion cannot continue indefinitely," the report adds. "But unless the competition from other forms of energy is very much keener, it seems likely that liquid fuels will continue to increase their share of the market."

The role natural gas will play in total energy consumption is partly tied to possible imports from the Sahara, and perhaps the Middle East and the Caribbean as well.

The commission considers that there are "very great possibilities" for such a development if some of the technical and economic problems of transport can be overcome successfully.

If these problems are solved, natural gas might contribute 135-million tons of coal equivalent by 1975. If developments go more slowly, the figure might be little more than 50-million tons.

The commission considers it "not unlikely" that Sahara natural gas may

Total Energy Demand, Potential Supplies Estimated for OEEC Area

(In million tons of coal equivalent)

	1955	1965	1975
Demand for primary energy	**177**	**970-1,050**	**1,225-1,425**
Mean of estimates	777	1,010	1,325
Potential imported supplies:			
Oil	146	260-310	380-500
Natural gas	—	5	10-75
Coal	28	10-60	10-60
Potential indigenous supplies:			
Coal	477	440-480	430-495
Lignite	30	45	60
Crude oil	13	30	50
Natural gas	7	25	50-60
Hydro-power	56	95	140
Nuclear energy	—	15-20	30-90
Others forms of energy	20	20	20
Total potential supplies	**777**	**945-1,090**	**1,180-1,550**
Mean of estimates	777	1,015	1,365

be integrated into a Western Europe distribution system before 1975—either by shipment by sea or by pipeline. Gas imports from all non-European sources "might conceivably be as high as 75-million tons of coal equivalent" by 1975.

There are also extensive and growing reserves of natural gas within Europe itself. Production has increased 20-fold in the past 12 years, to 7.7-million cubic meters in 1958. (A cubic meter is 35.3 cu. ft.) And further important discoveries have been made recently.

Proved gas reserves in France, Italy, Austria, Germany, and the Netherlands are already about 500-trillion cubic meters—equivalent to 65 years' production at the present rate.

Oil imports required from areas other than the Sahara would represent 1½ times the 1958 oil imports by 1975, the report estimates.

The commission figures Sahara production capability may reach 30-million to 50-million tons by 1965, and somewhere between 60-million and 100-million tons by 1975. It also allows for prospective increases in indigenous crude supplies.

Oil companies do not expect a significant rise in the "relative" price of oil, the commission says. Nor do they foresee technical difficulties in meeting such a demand.

The commission as a whole urges competition among the different fuels—unhampered by protection, price-fixing, or discriminatory taxes—to allow a free flow of low-cost energy to consumers.

One member of the commission, the report says, considers that indigenous resources—and others controlled by participating countries—offer a special degree of security, and therefore should enjoy some kind of preference.

But most members, it adds, do not regard such artificial encouragement as the best method of obtaining security.

French Step Up Sahara Outlays

PARIS—Stepped up exploration in the high-cost Sahara will boost total investments in French oil exploration this year by over 10%.

According to the just-released annual report of the government's Bureau de Recherches de Petrole, exploration costs will total $172.2-million in 1960. This compares to an over-all total of $155.5-million in 1959.

BRP points out that the rise is not due to an over-all increase in French exploration, but that it reflects the exploration boost in the high-cost Sahara area.

French companies this year will devote 62% of total exploration expenditures to the Sahara, as against 56% last year. The sum spent in metropolitan France will drop from 25% of the total in 1959 to 20% in 1960, while investments in exploration in other countries of the French Community will drop from 19% to 18%.

The French also expect a big boost in oil production this year—a total of 240,000 b/d. BRP estimates the biggest chunk—180,000 b/d—will come from the Sahara, with 40,000 b/d from metropolitan France, and a total of 20,000 b/d from Morocco, Gabon, and the Congo. Gas production this year is slated at 106-billion cu. ft.

BRP also makes these production forecasts: The Lacq natural gas field in southwestern France will be producing at maximum capacity; production capacity of Hassi Messaoud will range from 160,000 to 200,000 b/d; and that of the fields in the eastern Sahara from 140,000 to 200,000 b/d; and work on the gas pipeline from the Hassi-R-Mel field to the Algerian coast will be half finished.

This announcement is neither an offer to sell nor a solicitation of an offer to buy these securities. The offer is made only by the Prospectus.

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LEHMAN BROTHERS

January 26, 1960.

USSR Gains Most In Italy Market

The Soviet Union may have chalked up the biggest single gain last year among Italy's suppliers of steadily rising crude imports.

Other gainers: Kuwait, which retains its No. 1 position in volume, plus Iran, Saudi Arabia, and Iraq.

This is indicated in data recently released for the first nine months of 1959.

Source	9 Mos. 1959	9 Mos. 1958
Kuwait	5,455,792	4,814,260
Saudi Arabia	4,728,704	4,151,641
Iraq	3,857,565	3,419,531
USSR	1,522,371	675,146
Iran	1,030,180	412,249
Egypt	729,337	859,907
Venezuela	447,694	573,907
Other Arab states	357,466	1,128,949
Other countries	75,512	19,711
Total	18,204,621	16,055,301

What's New / AROUND THE WORLD

WEST GERMANY—Esso and Shell may build Bavaria's first two refineries—and also participate in one of the proposed pipelines from the Mediterranean (PW—Aug.28'59,p-40).

This was announced by Transalpin, Bavaria's state-sponsored pipeline study group. It said other companies, including British Petroleum, are also interested.

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INDIA—Shell has appeared as the first company to express interest in exploration in India under terms to be worked out under India's revised oil rules.. Also reported interested: Gulf Oil, and Standard Vacuum, which already holds a license in the Bengal Basin.

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WEST GERMANY—Germany's booming refinery output last year jumped an unprecedented 43.9% over 1958, after an increase of 28.1% in that year, and 4.3% in the 1957 Suez crisis year.

Crude runs in 1959 totaled 434,000 b/d, of which 332,000 b/d were imported. Leading products: heating fuel, which nearly doubled; gasoline, up 20.5%; and diesel oil, up 16.8%.

•

IRAN—Iran's oil output gained another 12% in 1959. The government's oil revenues, however, increased only 4%—reflecting the drop in prices.

The Consortium's 1959 output was 923,000 b/d, up from 821,000 b/d in 1958. The latter was up 15% from 1957.

Government revenues from 1959 operations were about $258.3-million, compared with $247.1-million in 1958.

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IRAQ—Oil output in Iraq last year jumped 17% over 1958, while the government's total revenues from oil increased 7½%.

The year's output by the Iraq Petroleum Co. group totaled 40.9-million long tons (850,000 b/d), up from 34.9-million tons (725,000 b/d) in 1958. The Iraqi government announced its total receipts from the companies as $242,359,250, compared with $223,685,132 in 1958. The year's oil exports, it said, were about 39-million tons, up from 33.3-million.

•

JAPAN—Stiff tariff hikes for crude and fuel oil now appear set. The Finance Ministry last week jumped the crude tariff to 6% from 2%, and that on fuel oil to 10% from 6½%. These rates will go into effect Apr. 1 if approved by the Diet, as industrial circles expect.

•

LIBYA—The new Esso Sirte has agreed to build a 4,000 b/d refinery for Libyan demand—currently about 2,200 b/d—in return for the Libyan government's recent approval of its pact to buy a 50% interest in three tracts held by Libyan American Oil Co. (PW—Jan.15'60,p32).

The plant will operate on Libyan crude, and will probably be located at the yet-undetermined coastal terminus of the major pipeline planned by Esso Libya for its Zelten discoveries.

•

NETHERLANDS—Oil output last year was increased only slightly, to 35,500 b/d, from 32,400 b/d in 1958. Gas output, however, was up 35%, to 182.3-million cf/d. The Netherlands' sole producing company is owned jointly by Jersey Standard and Royal Dutch Shell.

•

IRAN—A new $9.8-million catalytic cracker will be added to the Abadan refinery by the international Consortium. The 20,000 b/d unit will go into operation in two years.

•

IRAN—May 15 is set as the date for closing of the "open" areas of Iran on which no oil agreements have been made. National Iranian Oil Co. announces that these parts of districts 1, 3, 4, 8, 14, and 18 will be declared "closed" as of that date, until such time as they may again be declared open.

•

SOUTH AFRICA—Shell and British Petroleum will jointly build a 60,000 b/d refinery near Durban by 1963, if parliamentary approval is granted. South African Petroleum Refineries Pty., Ltd., equally owned by the two companies, will operate the plant. Standard Vacuum's 25,000 b/d refinery at Durban is the only one in South Africa at present.

•

INDIA—Copies of India's new oil exploration terms, geological data, and tax information are now available in the U.S. to oil companies interested in meeting India's Mar. 31 deadline for indications of interest in exploration rights. They may be secured from India's embassy in Washington and its consulates in New York and San Francisco.

•

MEXICO—Hughes Tool Co. has concluded an agreement for manufacture of rotary rock bits and tool joints by a Mexican company (PW—Dec.11'59,p53). Hughes will supply cones and bearings from Houston for installation on bit heads to be manufactured in a Vera Cruz plant now being built by Herramient as De Acero S. A.

•

HUNGARY—The government says it will start building a "highly automated" 60,000 b/d refinery next year outside Budapest on the Danube bank. The plant will be fed by the projected USSR East European pipeline.

•

BARBADOS—Mobil International will help an independent marketer expand its refinery here to 1,000 b/d. Mobil has acquired a minority interest in the firm—Barbados Union Oil Co. —which will supply Mobil with automotive and industrial fuels.

Italy's Agip Back Again in Ethiopia

ETHIOPIA—After 18 years of absence, Italy's state-owned Agip is back in Ethiopia—Mussolini's old empire.

The ENI oil marketing affiliate already has 28 sales outlets throughout the country and expects to have 55 by the end of 1962. It has also restored the old 240,000-bbl. Massaua storage terminal, and recently built two smaller terminals at Asmrar and Addis Ababa.

INTRODUCING

SHORT NEW CHEVROLET TILT CAB TRUCKS

72" BUMPER TO BACK OF CAB

They're built like "tilts" should be built—that's the story on this new line of trucks from Chevrolet. All of the special advantages of tilt cab design—compactness, extra payload capacity, easy maintenance, maneuverability—are better than ever before. And Chevy brings you some extra-special benefits, too!

MOST COMPACT IN ITS CLASS for higher profit payloads. Six-foot-bumper-to-back-of-cab dimension gives you more cargo space than ever before (almost 60 cubic feet more than other tilt cab trucks!). You can carry bulkier payloads in a bigger body; and you can carry *heavier* payloads, too, because the extra space means more of the load weight can be carried by the front suspension. This *shorter* design means longer profits!

BEST MANEUVERABILITY. With comparable body sizes, new Chevrolet tilt cabs are as much as 2½ feet shorter overall than conventional models and save up to 48 inches in wheelbase. This *minimized* length and wheelbase pay off in *maneuverability*—easy handling in tight places that will save you time and work every day.

ROOMIEST CAB in its class! New Chevy tilt cabs are big and comfortable inside. A full 6½ feet wide, with plenty of head room and leg room for rangy drivers. And there's the safety of "picture window" visibility through a sweeping glass area.

REVOLUTIONARY TORSION-SPRING RIDE standard in all models! Independently suspended front wheels step nimbly over bumps . . . and friction-free torsion bars soak up jolts of all sizes. New variable-rate rear springs complement the new front suspension perfectly. The result is an amazingly smooth ride that assures higher safe cruising speeds, more work done every day . . . plus longer truck life with lower maintenance costs.

And in every new Chevy tilt cab model, new tougher built rear axles and brawny new box-section side-rail frames team up with the best kind of big truck power.

New ease of maintenance slashes upkeep costs. Maintenance can be performed in as little as half the time required for conventional trucks!

Stationary control island is solidly mounted on truck frame. Short linkage is dependable and easy to adjust.

Torsion-spring tilting hinge takes the work out of tilting. A tough torsion bar counterbalances the cab's weight and makes cab tilting a breeze.

Triple-safe locking system provides protection against accidental tilting. Keeps cab securely anchored down when you're under way.

20 NEW MODELS IN 5 SERIES. Five rugged medium- and heavy-duty series offer G.V.W.'s up to 25,000 lbs. Money-saving power is provided by Chevy's famous truck-built engines—economy-minded 6's for all models up to 22,000 lbs. G.V.W. and tough V8's for bigger models. Chevy makes tilt cab design *work* like never before; you can see for yourself by visiting your Chevrolet dealer right now! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

New frames for Chevrolet tilt cab trucks feature massive K-brace crossmember and rigid box-section side-rail construction. Beam strength and torsional stiffness are high for top payload capacity and stamina.

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Shipowners, Union Draw Battle Lines

- **The International Maritime Workers Union is seeking NLRB authority to organize foreign seamen on U.S.-owned ships of foreign registry.**
- **But the American Committee for Flags of Necessity claims that U.S. labor laws don't have jurisdiction over foreign-flag ships.**

The attempt by the country's two maritime unions to organize seamen on U.S.-owned ships of foreign registry has entered a crucial stage. If their efforts succeed, more than 600 U.S.-owned foreign-flag tankers would be affected.

Large-scale registry under foreign flags—chiefly Liberian and Panamanian—dates from the early 1940s. Main reason: Pay raises to U.S. seamen had boosted wages three to four times higher than those paid to European seamen.

At the end of 1953, the U.S. was still the leading country of registry. But by 1958, Liberian registry had shot up to first spot, while that of the U.S. fell to second place.

At that time, U.S.-owned tankers totalled 801. But fewer than 300 were registered under the American flag. Of the remainder, Liberia registered 180, and Panama 131.

The National Maritime Union and the Seafarers' International Union have formed the International Maritime Workers Union to do the actual organizing.

IMWU asserts that the need for one strong union to represent the crews of American-owned foreign-flag ships is twofold: to protect U.S. seamen against competition from cheap alien labor, and to protect the foreign crewmen themselves by raising their wages and working conditions.

While IMWU is a separate union, it's using the personnel and facilities of its two parent unions in its organizing work. The new union reportedly also is being supported by officers' organizations, which represent the masters, mates, and pilots, the engineers, and the radiomen.

Arch opponent of the organizing scheme is the American Committee for Flags of Necessity, which contends that foreign registry "is an economic necessity for survival." Among its 21 members are 11 major oil companies.

The companies are: American Oil Co., Atlantic Refining Co., Cities Service Oil Co., Gulf Oil Corp., Richfield Oil Corp., (L.A.), Sinclair Refining Co., Socony Mobil Oil Co., Standard Oil Co. (N.J.), Standard Oil Co. of California, Tidewater Oil Co., and Texaco Inc.

In addition, several independent tanker-fleet owners are members. One is National Bulk Carriers, which owns the 104,500-ton Universe Appollo—the world's biggest tanker.

National Labor Relations Board hearings were scheduled to be held this week on the issue of IMWU's right to hold union elections among foreign crewmen.

The scheduled hearings grew out of a clash between IMWU and United Fruit Co.

Two wholly-owned subsidiaries of United Fruit operate ships under the Honduran flag. In an attempt to organize their crewmen, the union circulated pledge cards. IMWU reports 90% of the men favored membership.

In a petition to NLRB, the union sought authority to hold elections among the men.

United Fruit countered with a request for dismissal of IMWU's application. It was denied.

The American Committee argues that U.S. labor laws have no jurisdiction over ships of foreign registry.

It also contends that organization of foreign crews by a U.S. union would infringe on the political sphere of interest of the U.S. and the country of registry, in which only the President has power to act.

And, it adds, in the case of Liberia

Neoprene "Pigs" Purge Gas Pipeline

This is one of several neoprene spheres being used by Colorado Interstate Gas Co. in an unusual solution to a common problem: The "pigs" are being used to clear pockets of trapped, condensed hydrocarbons out of a natural gas pipeline. The company is using the spheres in its gathering system in Oklahoma's Mocane and Laverne fields. Gas there has a high concentration of heavy hydrocarbons, which condense and collect in low spots at ground temperatures. The gas pressure itself had been insufficient to push the liquids through. Since the spheres were put in service, however, gas flow has been uninterrupted.

such organization would violate U.S. treaty provisions with that country.

IMWU contends that U.S. labor laws do have the requisite jurisdiction.

A union spokesman says, "It's pretty well established in law that men do have the right to choose the union they want to represent them."

He adds that the big task facing the union "is to establish legal precedents" for the organization of alien seamen.

The issue has far-reaching implications.

If NLRB decides that IMWU does have the right to conduct elections, its decision would be tantamount to an adjudication that foreign seamen on ships of U.S. ownership, though of foreign registry, come under the labor laws of this country.

Such a ruling would be considered an important initial victory for the union. United Fruit would be certain to appeal, however.

The stakes are high: An average wage differential of $440 per month between U.S. and alien seamen.

IMWU puts the average monthly wage of a U.S. ablebodied seaman at $560, and of a foreign seaman at $120.

An IMWU spokesman admits that the union doesn't expect to get the U.S. scale for foreign crewmen, even if it does succeed in organizing them.

"But we intend to narrow the wage differential, as well as correct substandard conditions and protect our own jobs," he says.

The shipowners claim that the foreign seamen are being paid wages commensurate with the living scales of their countries.

IMWU announced last week that it was getting set to appeal to the Third Circuit Court of Appeals a recent court injunction against picketing by its members in support of a walkout by foreign crewmen in Philadelphia.

The work stoppage occurred on Jan. 12, when 5 of a crew of 17 Greek seamen walked off the U.S.-owned, Liberian-registered Liberty Ship, Madison Bell. IMWU members joined their picket.

A federal district court ordered the IMWU members to disband. On appeal to the Third Circuit Court of Appeals, the order was upheld, with leave for a further appeal.

In its new appeal, the union will try to establish that the district court had no jurisdiction to issue its restraining order in the first place.

The injunction is being touted by the American Committee as a defeat for IMWU.

The union disagrees. A spokesman asserts, "The injunction wasn't a setback. All that was granted was a temporary restraining order. Law wasn't decided in any way."

The union claims that its organizing plan has the support of unions in many countries.

A spokesman asserts: "The shipowners are going to squirm, holler, and beat hell out of their men to stop this drive. But unions in every port of the world, outside the Iron Curtain, are working for it, and we think it's going to work."

In fact, IMWU's activities have the sanction of the International Transport Workers Federation—an international secretariat representing workers in all modes of transportation. Early last year, ITWF rewrote basic policy to permit organizing of crews of any nationality by unions in countries where their ships are owned (PW—Jan.30'59,p13).

Foreign registry of U.S.-owned vessels to take advantage of low-cost labor appears to have the approval of the U.S. government.

"Until such time as American-owned ships, now sailing under foreign flags, might be operated competitively under the American flag, we see no alternative but to continue on the present course," C. Douglas Dillon, Under-Secretary of State, has said.

Dillon's statement was made in answer to protests by foreign shipowners of "unfair competition" resulting from foreign registry.

Part of the government's defense policy is to maintain a merchant fleet under its "effective control." Ships registered in Liberia and Panama are considered by it to be under "effective control."

No attempt has been made yet to organize crews of tankers, in which the U.S. government has a key defense interest. But oil companies are waiting uneasily for IMWU to move.

"If the claims of the National Martime Union are upheld, the situation will become serious," says the president of one major oil company. "The problem deserves the counter-attack which the American Committee for Flags of Necessity appears to be effectively providing."

The oil company official's statement was in reply to one of 400 letters sent by the American Committee to U.S. companies, shipping and otherwise. The letter warned: "It is apparent that U.S. maritime unions are determined to seize control of our foreign investments through any methods available to them."

How to make tracks at pig-running time!

Unibolt hinged scraper traps are the answer

But not even a Unibolt Scraper Trap . . . with its easy-opening two-bolt coupling, its free-swinging hinged closure, its tight-sealing, long-lasting resilient gasket . . . can take all the work out of catching a pig. It comes mighty close, though, to making the job of starting and catching scrapers a trouble-free operation.

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The Unibolt Hinged Blowdown, or blowoff head, is an ideal companion to the Unibolt Scraper Trap on gas line service.

Complete details are carried in Bulletin PL-590, copies of which will gladly be sent on request.

A hinged type Unibolt Scraper Trap in closed position.

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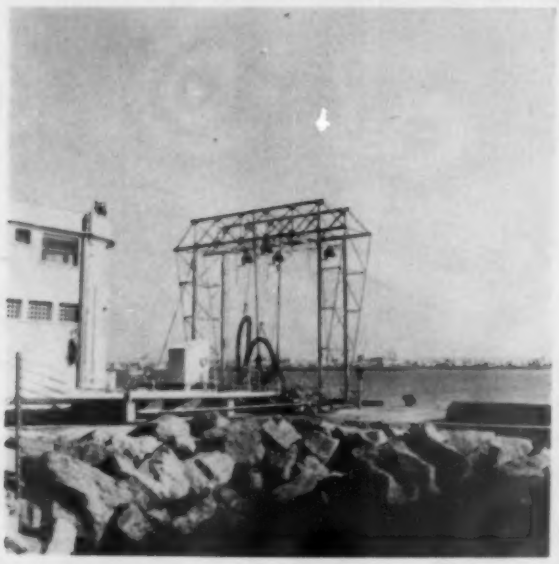
SUPERSTRUCTURE to support line hoists is erected on dock.



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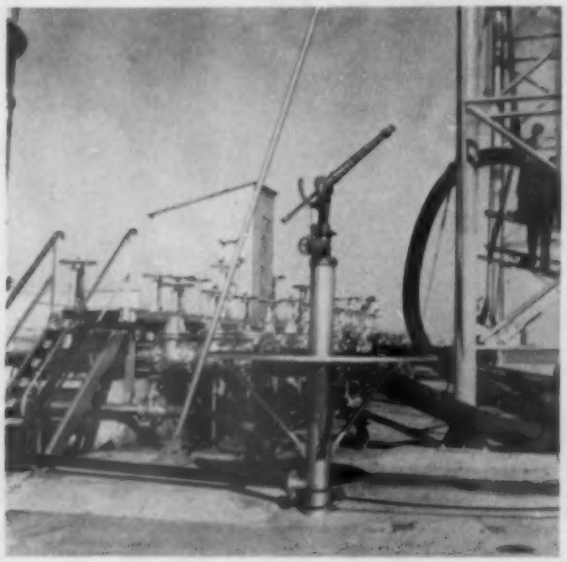


MANIFOLD shunts products into five pipelines going inland.

New Tanker Terminal for Casablanca

New tanker unloading facilities have replaced outmoded, primitive equipment at Casablanca, Morocco.

Products deliveries to the port have climbed steadily in recent years. A big impetus has been heavy-fuel consumption by the port's large U.S. Air Force base.

Prior to the new installation, unloading lines were delivered to tankers two ways. If a ship could be brought flush against the dock, the lines were handed out on the end of a long pole. If a ship couldn't be, the lines were strung out behind a rowboat.

Main feature of the installation is a portico, whose four electric hoists carry unloading lines to tankers.

The 1.5-ton hoists travel out on 15-ft. rails. When a tanker pulls alongside, the rails are moved out over the water and the lines are dropped from the hoists.

The operation is controlled from a nearby station.

The new unloading terminal connects with five pipelines running inland.

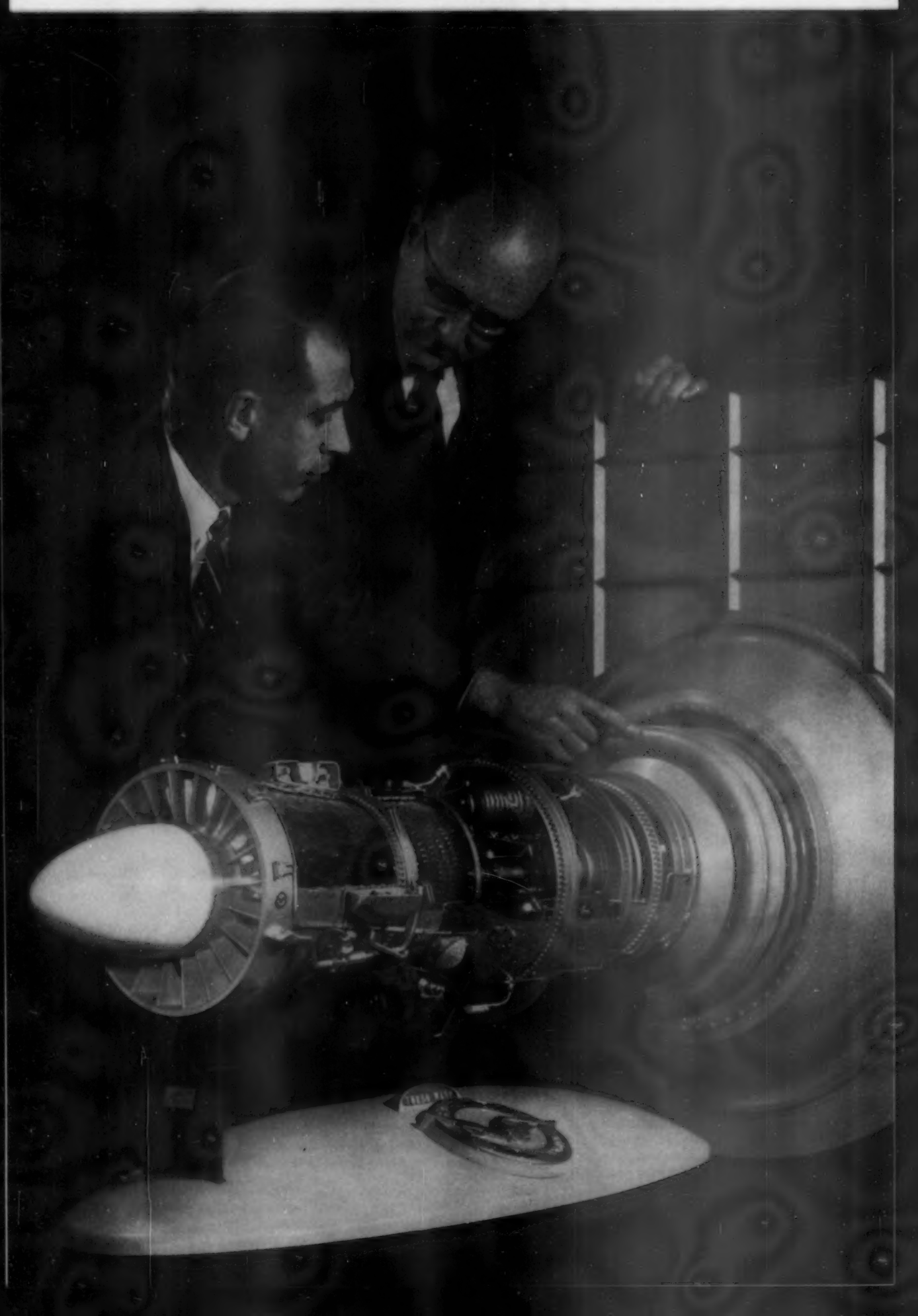
Two of the lines are reserved exclusively for the U.S. Air Force. Two others are for the French Navy, and the fifth is for all other deliveries.

Products are shunted into the pipelines through a manifold.

Among the products carried by the lines are jet fuel, aviation gasoline, gas oil, light distillates, motor fuel, and heavy fuel oil.

Next project planned for the new unloading installation is cathodic protection of connecting pipelines, according to Jaques Guercin, chief engineer.

The terminal recently was equipped with permanent fire-fighting apparatus.



Quarter-scale model of experimental gas turbine being developed by Cooper Bessemer and Pratt & Whitney Aircraft. Units should be available for use within 18 months.

How Cooper-Bessemer is teaming up with Pratt & Whitney Aircraft to develop JET TURBINE POWER for industry

The cutaway model shown is a revolutionary new concept in gas turbines. The generating unit is a new Pratt & Whitney Aircraft jet engine—a modification of the famous J-57 aircraft engine, designed for gas fuel. The companion power unit is a new Cooper-Bessemer power turbine. This combination, now in the advanced experimental stages, represents the hottest development in industrial power in 20 years. It will mean drastic economies in installations of engine-driven compressors, generators and other rotating machinery.

For example, it is expected to materially reduce the construction cost of gas compressor stations.

Plans call for this new gas turbine to be available for broad application within 18 months. In the meantime, watch for reports on further developments in this pioneering teamwork by Cooper-Bessemer and Pratt & Whitney Aircraft.

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What's New / IN PIPELINES

The Committee of American Tanker Owners, Inc., comprising 14 owners, has joined the plea for a presidential order to guarantee U.S.-flag tankers 50% of all oil imports cargoes.

The initial appeal was made last month by the Joint Committee for American Flag Tankers, a maritime union-owners group (PW—Jan.15'60, p30).

This appeal has sparked an inquiry by the Office of Civil & Defense Mobilization.

In their petition, the owners warn that without assured cargoes they might not be able to continue to meet principal and interest payments on their government-insured mortgages, totaling about $200-million.

•

Delhi-Taylor Corp. has completed its 2-million-gal. petrochemicals distribution terminal at North Charleston, S.C.

Among the petrochemicals that will be stored there are toluene, xylene, mineral spirits, and solvents.

The products will come by tanker from Delhi-Taylor's plant at Corpus Christi, Tex. Distribution to customers will be by tank car, tank truck, or barge.

•

Southern Natural Gas Co. is seeking a hike in its natural gas rates of $7,756,600 a year.

More than 20 customers of Southern Natural opposed the boost at a recent Federal Power Commission examiner's hearing.

•

The largest grain cargo in U.S. maritime history is being carried by a brand new oil tanker—on its maiden voyage.

The 33,000-ton Penn Challenger was completed by Bethlehem Shipbuilding Co. last month, and then outfitted for grain hauling.

The ship recently was loaded with 30,500 long tons of barley at Portland, Ore., for shipment to Poland.

•

"Measurement of Secondary Stresses in Pipelines," the latest American Gas Assn. study, is now available.

The report contains the results of research in stress-testing by ten major gas transmission companies.

•

Engineering

Two new electronic instruments which, it is said, may cut weeks or even months off the time it takes to run difficult pipeline surveys, have been developed by Tellurometer, Inc.

One device is called an "Aero-Dist." because it's carried by plane over the land to be surveyed. The other is named the "Hydro-Dist." because it's used aboard ship to plot distances on water.

Both instruments are based on the company's prototype Tellurometer System, first developed for ground surveys (PW—Nov.20'59,p41). With this system, distances are measured by measuring the time it takes microwaves to travel between two set points.

In the air survey, two remote receiving units are set up on each side of the plot being surveyed. A master transmission unit is flown between them. As the plane approaches and then crosses the nonintervisible line between the remote units, microwaves are sent to them, and the time of travel is measured. With these measurements, a straight line that represents the shortest distance for a pipeline route can be plotted.

The "Hydro-Dist" operates the same way, except that the master unit transmits to receivers on ships at sea.

•

A new device to monitor temperature and pressure at pipeline compressor stations has been developed by Thomas A. Edison Industries, West Orange, N. J.

A main advantage claimed for the instrument is that it employs individual Wheatstone bridge circuits. This eliminates the need for mechanical or electronic stepping switches, which wear out and require maintenance, the developer says.

Nearly all critical temperatures and pressures can be monitored with the one instrument.

The device is said to be suitable for all types of stations: manually or remotely operated, or completely automatic. In an automatic station, it can be used in conjunction with a digital computer.

Natural gas producers in Texas and Louisiana are assured a stable market for their output via Transco, pipeline to the markets where the most people are.

TRANSCONTINENTAL GAS PIPE LINE CORPORATION

BP CANADA has just opened its 600th retail outlet, and plans to have 800 by 1960. This rapid expansion explains why . . .

BP Canada Challenges U.S. Marketers

BP Canada, Ltd., in just two and a half years, has become a major competitor in Canada, with 600 retail outlets.

BP Canada, a subsidiary of British Petroleum Co., has gained the admiration of American companies marketing in Canada with its mushrooming service stations and selection of choice locations.

As of Jan. 1, 1960, BP had 597 retail outlets—195 in Ontario and 402 in the Province of Quebec.

Before 1960 is over, BP plans to open 200 more stations in Canada, and by 1964 it hopes to command a full 10% of the gasoline market in Quebec. "In Ontario, the 10% figure will be reached at a later date," BP told PETROLEUM WEEK last week.

With 800 retail outlets by 1961, BP will be challenging the market position of Cities Service Oil Co., Ltd., and Sun Oil Co., Ltd., wholly owned affiliates of American companies, which, like BP, market exclusively in Quebec and Ontario.

They have between 700 and 800 outlets each.

Still way out in front in Canada's marketing picture are Imperial Oil Ltd., 70% owned by Standard Oil Co. (N.J.), with over 5,500 outlets; British American Oil Co., Ltd., 58% owned by Gulf Oil Corp., with approximately 5,500 outlets, and Texaco Canada Ltd., 66% owned by Texaco Inc., with over 4,500 outlets.

All these companies (except Texaco in Newfoundland) market throughout Canada's ten provinces.

Only 30% of BP's outlets in Canada were company-built; the rest were purchased. BP expects to continue this pattern of expansion in 1960.

As for invading new provinces, BP says it will stick to Quebec and Ontario for the present.

BP describes its present marketing plans in Canada as an attempt "to consolidate our position and to develop our marketing operations in Quebec and Ontario."

The company considers itself approaching a second stage of development, however, in which emphasis will be placed on developing brand image.

"The main problem of any new company is that it is unknown and does not have sufficient distribution facilities to create a militant demand," says BP. "This initial problem has to a large extent been overcome.

"We hope that, in our next stage of development, prominence will be given to brand image."

In April BP will place on stream a 25,000 b/d refinery at Ville d'Anjou, near Montreal, which will "temporarily fill BP's marketing requirements in Canada."

The refinery, actually built by another BP affiliate, BP Refinery Canada, Ltd., will consist of the following units:

- Combined atmospheric and vacuum light distillation unit;
- Catalytic cracker with vapor recovery section;
- Catalytic reforming unit with vapor recovery section;
- Catalytic polymerization unit with associated feed preparation;
- Desulfurization unit for treating light distillates.

Incorporated in these units are a

VILLE D'ANJOU REFINERY, with 25,000 b/d capacity, goes on stream in April.

number of subsidiary treating facilities for individual product streams, such as copper chloride treatment units for sweetening gasoline.

The refinery will not produce any lubricants.

BP says that when the refinery fails to meet the company's growing marketing needs, "exchange and/or processing agreements with other oil companies will be made if necessary." However, provision has also been made to increase the refinery's output.

Coupled with the opening of BP's refinery is an expansion in bulk storage plants and a build-up of distributor representation in heating oil.

BP has 17 bulk plants in operation and three more are "in hand."

In a relatively new development, BP has signed up 20 heating oil distributors, and has already formulated plans for extending this coverage. BP expects that about 30% of its total crude runs will be accounted for by heating oils.

The company does not use distributors to supply its service stations with gasoline. And, unlike British Petroleum in Germany, BP Canada will not market custom blended fuel, even though it has the equipment to do so.

Parts Maker Offers Credit to Dealers

Service stations dealers will be able to supplement the credit they receive from their oil suppliers by using a Monthly Accessories Credit Plan offered by a manufacturer of automobile parts and accessories.

Bowes "Seal Fast" Corp. has announced what may be the first nationwide credit plan ever offered dealers by an independent manufacturer.

Starting Mar. 1, 80% of the "thousands" of dealers who buy from Bowes' 500 franchised truck distributors will be eligible to buy on credit everything from oil filters and battery cables to polish and tire patches.

Billing and accounting will be handled by the manufacturer, whose distributors will be charged 6¾% of the cost of each item they sell on credit to dealers. The dealers will pay nothing extra to use the plan.

The distributors have already approved the plan, says Bowes. Now the dealers must accept it.

Each dealer who joins the plan will receive a credit card that fits into imprinters carried by Bowes' distributors. Every month, Bowes will send the dealers a bill for everything they've purchased with the card.

What's New / IN MARKETING

Public regulation of service stations may be proposed next year in the Washington State legislature.

In a bill now being drafted by the Washington Legislative Council, the stations would be regulated by the state's Public Service Commission or by a state petroleum board.

The bill would also place under regulation the refining, transportation, and marketing of gasoline, and it would require all dealers to be licensed.

In addition, the bill would require posting of refiners' names on all petroleum products, along with the octane rating on gasoline.

If a subcommittee in the council approves the bill, it would then go to the full council for possible submission to the 1960 legislature.

The bill is designed, in part, to bring an end to the price wars that have been plaguing several areas of Washington for many months.

•

Last week Sun Oil Co. began honoring the Hilton "Carte Blanche" at its 9,000 service stations in 21 states, the District of Columbia, and the Canadian provinces of Ontario and Quebec.

Sun joins Mobil Oil Co., Shamrock Oil & Gas Corp., Union Oil Co. of California, Tidewater Oil Co., and Continental Oil Co., all of which began honoring the "Carte Blanche" last year.

•

A gasoline price war broke last week in Hammond, Ind., where a Teamsters local and a gasoline retailers association had been convicted of conspiring to fix prices.

Prices dropped between 4¢ and 8¢ a gal. in both major and private-brand stations.

Teamster local 142 and the Gasoline Retailers Assn. of Lake County were convicted last month of conspiring to prevent price fluctuations by banning price signs and trading stamps at service stations.

•

The National Fueloil Council gained a 13th refiner-member last week with the enlistment of Delhi-Taylor Oil Corp., of Dallas.

Delhi-Taylor markets chiefly in the Southeast, with bulk plants in Florida and North and South Carolina.

The 13 NFC refiner-members are: Atlantic, California Oil Co., Cities Service, Delhi-Taylor, Esso Standard, Gulf Oil, Mobil Oil, Phillips, Shell, Sinclair, Indiana Standard, Sun, and Tidewater.

•

As part of its expansion into the South, Tidewater Oil Co. will begin work this month on a 100,000-bbl. marine terminal at South Norfolk, Va.

The new terminal, which is needed to provide economical storage of products transported from Tidewater's Delaware refinery, will serve the Norfolk area and Tidewater's new (since October) marketing territories in northern North Carolina.

•

The octane rating of premium gasoline remained unchanged last month at 99.3-octane. Regular gasoline dropped 0.1 to 92.3-octane, according to Ethyl Corp's monthly survey.

Superpremium gasolines ranged from 100.3-octane to 102.7-octane in January.

Compared to January, 1959, premium showed a rise of 0.3-octane, and regular rose 0.8-octane.

•

Engineering

A new antifreeze, designed especially for automobile engines containing aluminum, has been developed by Olin Mathieson Chemical Corp. It is said to be suitable for all liquid-cooled engines.

The new antifreeze contains an improved ethylene glycol formula that will not corrode aluminum or other metal parts, according to the company.

•

Prefabricated service stations erected "in less time than is now possible and at a lower price," were promised last week by Davidson Enamel Products, Inc.

With its first line of prefabricated, all-porcelain stations, Davidson offers a "complete package," in which all work on the stations—from pouring foundations to supplying the glass—is supervised by the company.

J. F. POWERS, JR., has been appointed vice-president and sales manager for Chiksan Co., Brea, Calif. He joined the Chiksan sales department in 1951, and became Eastern Regional sales manager in 1958. In his new position, he will move from the company's Eastern office in Newark, N.J., to its headquarters at Brea.

C. V. Helm

J. F. Powers, Jr.

CYRUS V. HELM is the new administrative assistant to **Walter Beadle,** executive vice-president of Western Co., Ft. Worth. He will be responsible for evaluating and formalizing the company's planning functions, as well as coordinating the administrative functions of Beadle's department. Helm, with Western since 1948, was most recently manager of industrial relations.

HOWARD CRIDER, Oklahoma City is manufacturer's representative in the Oklahoma, Kansas, and Panhandle region, for Tom Wheately Co., Houston. Crider, who has been associated with Gulf Oil Corp. and Creole Petroleum Corp., has been engaged in oilfield sales for the past ten years.

R. D. STAYNER is eastern sales manager of the newly created industrial chemicals division of Oronite Chemical Co., subsidiary of Standard Oil Co. of California, with offices in New York. He was formerly Oronite's detergent products specialist, in San Francisco. Stayner will be responsible for sales of Alkane and other detergent raw materials, polybutenes, dispersants, xylenes, odorants marketed to gas distribution companies, and other Oronite products.

JONES & LAUGHLIN SUPPLY DIVISION has appointed three new store managers. **F. W. Bryan,** formerly salesman at Mexia, Tex., is the new store manager there, and **J. L. Brown,** formerly salesman at Longview, Tex., is now store manager there. **R. A. Stearns,** formerly storeman at Borger, Tex., has been promoted to store manager at Best, Tex.

JAMES ZENNER has joined Grove Valve & Regulator Co. as manager of its Houston office. He will act as liaison between Grove's Southwestern field force and its home office in Oakland, Calif. He was most recently in charge of warehousing, purchasing, and field material control for Gulf Oil Corp., in Buras, La.

J. Zenner

R. H. Heffelfinger

R. H. HEFFELFINGER has been promoted to superintendent, production and properties, in the Gulf Coast area for Milwhite Mud Sales Co., with headquarters in New Orleans. He was formerly superintendent of Milwhite's New Orleans plant. At the same time, **W. G. Freeman** was promoted to assistant chief engineer, production and properties. He was formerly a Milwhite mining engineer. Freeman will be located in Houston, and will travel extensively for the company.

I. W. (Ike) VAIL has been named sales manager, automation division, of Samuel Jackson Mfg. Corp., with offices in Odessa, Tex. For the past four years, Vail has been district sales representative in the Permian Basin for Minneapolis-Honeywell Regulator Co. In his new position he will handle the sales and application of control panels for lease automation and other oil industry functions.

T. M. JAMES becomes field personnel manager of the industrial division of Nalco Chemical Co., Chicago. He was formerly manager of the division's Pacific Northwest district, with headquarters at Portland, Ore. **W. V. Cross** transfers from the Wisconsin district to replace James in Portland, and **J. A. Manley** replaces Cross as manager in Wisconsin.

A. RUSSELL YOUNG has been appointed assistant executive vice-president and general manager of J. F. Pritchard & Co., Engineers and Constructors, serving the natural gas, petroleum, chemical, and power industries. Young joined the Pritchard organization in 1938, and became manager of the gas division in 1944. In 1954, he was appointed vice-president of that division. Young is also vice-president of Constock-Pritchard Liquefaction Corp., which was formed to engage in the design and development of plants and facilities for all phases of natural gas liquefaction.

A. R. Young

D. M. Salls

DAVID M. SALLS, manager of gas industry marketing for Cooper-Bessemer Corp., has been named product sales manager for the company's new RT-248 gas turbine. The new unit is scheduled for its first pipeline installation at the Columbia-Gulf Clementsville (Ky.) compressor station next summer. Salls first joined Cooper-Bessemer in 1941. In 1947, he became associated with Texas Eastern Transmission Corp., and returned to Cooper-Bessemer in 1951.

BRUNNER C. BARNES and **ROBERT R. CLICK** have formed a new company called Barnes & Click, which specializes in consultation and design work related to natural gas production and processing. Both men were formerly with Mobil Oil Co., in Dallas. Barnes, who joined Magnolia Petroleum Co., now a part of the Mobil organization, in 1940, has been chief process design engineer in Magnolia's natural gas department since 1953. Click joined Magnolia in 1949, and has been senior operations control engineer in the natural gas department.

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HE MAKES HIS ENGINE STALL

...so yours won't!

Charles Domke (right) is one of the few men we know who takes a positive delight in having his engine stall in sub-zero weather. He and Mechanic Verland Stout change gasoline blends frequently. When the engine stalls, they try another blend. Their objective, of course, is to find the perfect gasoline under various climatic and road conditions—and the true test is on the road itself!

The gasoline that performs best in icy conditions will cause engine difficulty in hot weather. Standard gasoline formulas are changed twelve times a year to assure peak performance in every season. Mixtures also differ from one geographical location to another in order to offer customers more gasoline value for their dollar.

Charles Domke has one of the world's most unusual jobs. He *tries* to have engine trouble!

He's a Project Automotive Engineer at Standard Oil. In all kinds of weather—hot, cold, wet, dry, low barometer, high barometer—he goes driving. First thing you know, he'll stop and change fuel, put in a different blend of gasoline to see what happens. If it stalls, he doesn't call a tow truck. He just puts in another blend of gasoline.

You might say he *makes* his engine stall...so yours won't!

What Mr. Domke and other automotive engineers learn from these constant experiments is used to give you gasoline that is blended especially for the region of the country in which you live and also for the season.

It may surprise you to learn that *12 or more seasonal changes* are made in Standard gasoline every year! It is adjusted for temperature, humidity, altitude and other factors that affect gasoline performance in your area.

A pioneer in petroleum research, Standard Oil is famous for its "firsts" in petroleum progress. Since our first research laboratory opened 70 years ago, our scientists have been responsible for many major petroleum advances—from making a barrel of oil yield more gasoline to discovering a way to get more oil out of the earth.

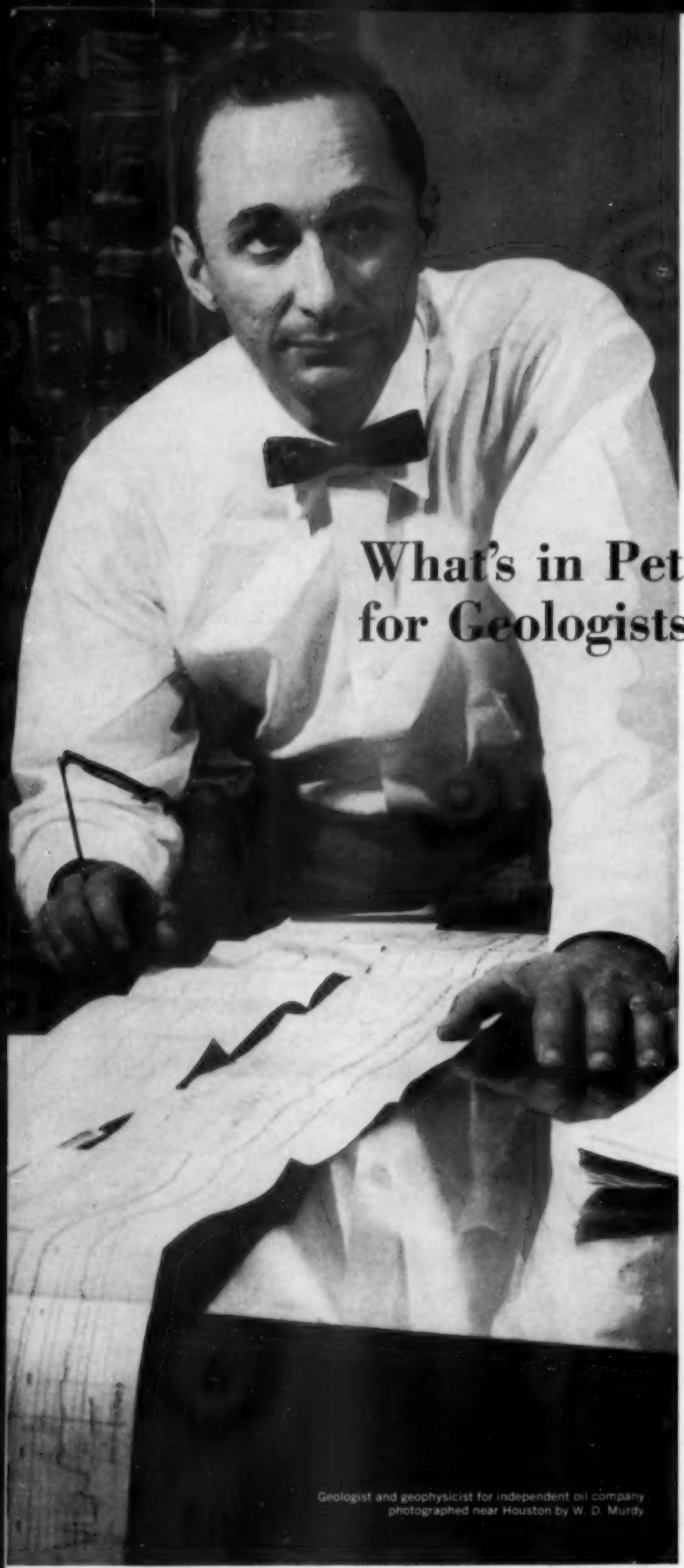
Charles Domke and other scientists at Standard Oil and its affiliated companies are searching continually for ways to make oil products serve you better...to make petroleum *more useful to more people than ever before!*

What makes a company a good citizen?

For a company, good citizenship is more than obeying the law and paying taxes. It is looking ahead, planning for the future, making improvements. America has grown to greatness on research conducted by private business for the benefit of all.

STANDARD OIL COMPANY
(INDIANA)

STANDARD
THE SIGN OF PROGRESS...
THROUGH RESEARCH



Geologist and geophysicist for independent oil company photographed near Houston by W. D. Murdy.

What's in Petroleum Week for Geologists and Geophysicists?

GEOLOGISTS and GEOPHYSICISTS find plenty in Petroleum Week. For Petroleum Week broadens the horizon of more than 45,000 men in the oil industry, at all levels and in all segments. It's the magazine where busy oil men keep informed, where they get up-to-the-minute reports on the news, technical developments and trends that affect their daily activities. Out of this information they acquire the industry perspective so vital to doing a good job.

A good, responsible geologist has to keep informed, and that's why he likes Petroleum Week – oil's most readable magazine. He is responsible for the geological surveying and exploration work. In effect, his judgment is the basis of an oil company's decision to drill – a multi-thousand dollar decision. Geologists are among the many thousands of subscribers to PW who are actively and directly engaged in the oil industry.

Whether you want to reach geologists or presidents, technical men or operating men, the pages of Petroleum Week can carry your advertising messages effectively, for all groups of buying influences are covered. That's why more and more companies are placing more and more advertising in this magazine in 1960.

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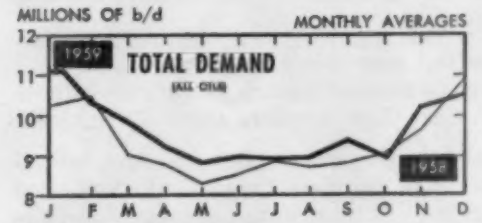
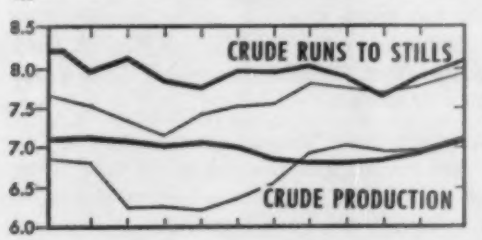
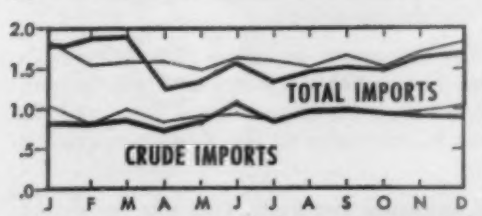
One of a series of portraits of oil industry management and operating men.

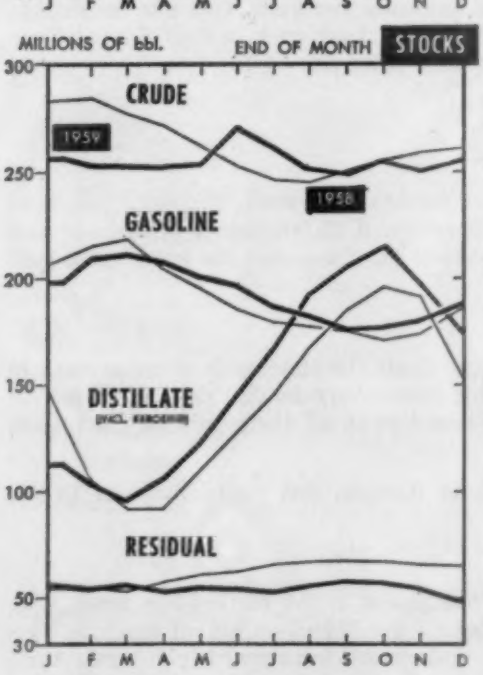
PETROLEUM WEEK'S

Fingertip Figures









Supply-Demand Figures for January

(millions of b/d)

	January 1960	January 1959	% Change
Total Demand (Inc. Exports)	10.841	11.312	— 4.2
Gasoline	3.696	3.751	— 1.5
Distillates (Inc. Kerosine)	3.311	3.705	—10.6
Residual	2.033	2.134	— 4.7
Total Supply	9.875	10.178	— 3.0
Domestic Crude	7.146	7.223	— 1.1
Nat. Gas Liquids	.890	.862	+ 3.2
Total Domestic	8.036	8.085	— 0.6
Crude Imports	.906	.925	— 2.0
Total Imports	1.839	2.094	—12.2

Figures for period ended January 29, except as noted

RUNS TO STILLS

Latest week	8.149
Previous week	8.227
Year ago	8.140

CRUDE PRODUCTION

Latest week	7.136
Previous year	7.190
Year ago	7.107

TOTAL IMPORTS

Latest week	2.179
Previous week	1.810
Year ago	2.023

CRUDE IMPORTS

Latest week	1.059
Previous week	.844
Year ago	.968

CRUDE STOCKS

Week-ended 1-23	248.7
Previous week	250.0
Year ago	257.9

GASOLINE

Latest week	203.2
Previous week	199.9
Year ago	197.5

DISTILLATES

Latest week	151.8
Previous week	158.5
Year ago	117.6

RESIDUAL

Latest week	47.9
Previous week	50.1
Year ago	57.9

The January demand figures filled up the minus columns of the ledger.

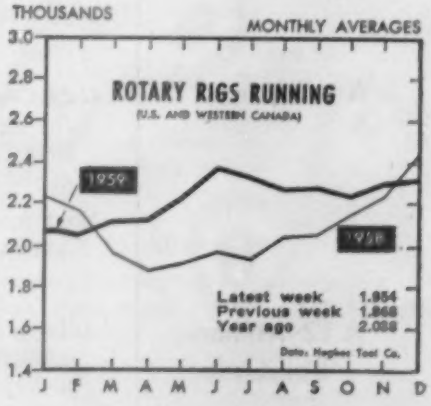
With both the weather and the industry operating contrary to desired trends, total demand averaged 10.8-million b/d, 4.2% below the previous January.

The biggest decline in demand came in the distillates, with the weather slowing heating oil sales. Too, with mild weather more gas was available to compete in industrial markets, since interruptions of gas supply to industrial firms was unnecessary in January.

The ledger for January showed another bad entry for the industry—surplus inventories.

The poor demand for heating oils meant that net withdrawals from distillates inventories were relatively small. And stocks of gasoline accumulated in the month almost as much as distillates were withdrawn.

Total new supply fell 3% in January, to 9.9-million b/d. Crude imports declined 2%. Refinery runs averaged 8.3-million b/d, slightly higher than last January.



The Market Trend

Product Weakness May Threaten Crude

Product prices seem to be on the brink of bad trouble. It's nothing that 30 days of cut runs wouldn't cure. But as it stands now, the price of crude could be in jeopardy by early spring.

Heating oils look like the softest spot this week. Stocks east of the Rockies have a 32-million-bbl. bulge on those of a year ago. Distress cargoes of No. 2 showing up in the Gulf. East Coast resellers aren't filling tanks.

It's hard to see how the industry can get through the first half of February without a break in No. 2 in the East Coast, Gulf Coast, and Mid-Continent areas. ("I'd hate to tell you what we're paying spot in Oklahoma.") The price was probably below 9¢, f.o.b.

If heating oils turn sour before spring, there will be a lot of distillate cracked for gasoline. This will back up crude. It also will add a little more weight to the surplus of gasoline in the Midwest.

Right now, there seems to be too much gasoline in the areas served by the Great Lakes Pipe Line. Shaded prices below 10¢ (which itself is low) are common on northward shipments from the Mid-Continent. This week, St. Louis retail prices dropped from 6¢ to 8¢.

Inland refiners are passing along their "import quota subsidies" to gasoline buyers. You might say that inland gasoline prices are 0.5¢ lower than they might be without the mandatory imports program. At West Memphis, Ark., barge offerings to Chicago are quoted at Gulf Coast prices or lower, nullifying 1,000 mi. of freight advantage.

Propane eased, too, with 0.5¢ discounts spreading into Wisconsin, Minnesota, Iowa, and the Dakotas. Unless February is a cold month, manufacturers will have a big inventory carryover in underground storage this spring. A bright spot here is that butane sales to the Southeast are still holding firm.

Even lower-sulfur bunker oil weakened last week. This was the strongest product all through the early winter. Last week, a Gulf Coast refiner listed $2.25 a bbl. for a cargo-lot. This price was off 10¢ from the winter's high.

S.O.S. Tankers:

The winter is over for the tanker market. This week, two clean T2s were sitting at the Gulf with no charters. A 32,000-tonner is tied up, also waiting. And some U.S.-flag vessels have accepted the lower rates paid in foreign service.

A Whipsaw?

Gulf Coast refiners are not happy about the time cycle of price wars in the Carolinas. They seem to hit about every four to six weeks—just in time for some of the private-branders to fill their tank at the bottom of the market.

That makes for lovely margins in Raleigh, and minus numbers in the Southwest.

A 12-Million-Bbl. Order:

A large No. 6 oil requirement was placed in the market last week. Consolidated Edison of N.Y. is looking for 12-million bbl. of residual. This will cover its New York City requirements for a year beginning in April.

The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of February 1

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U.S. Gulf Coast, cargoes
- Gasoline, 98 oct prem....12-13
- Gasoline, 92 oct reg....10.75-11.5
- Kerosine....9.5-10
- Heating oil, No. 2....8.625-9.1
- Gas oil, 48-52 d.i....8.875-9
- Fuel oil, bunker "C"....$2.00-2.10

Caribbean, cargoes
- Avgas, Grade 100/130....14.75
- Gasoline, 93 oct research prem....11
- Gasoline, 87 oct research reg....10.125
- Gasoline, 79 oct research....9.375
- Gasoline, 70-72 oct motor method....9.25
- Kerosine....9.75
- Heating oil, No. 2....8.625
- Gas oil, 48-52, d.i....8.875
- Fuel oil, bunker "C"....$2.00

New York Harbor, barges
- Kerosine....10.6-11.1
- Heating oil, No. 2....9.6-10.1
- Fuel oil, No. 6....$2.37-2.47

Okla.-Group 3, northern shpt., bulk
- Gasoline, 91 oct reg....10-10.75
- Kerosine....10.375-10.5
- Heating oil, No. 2....9.25-9.5
- Fuel oil, No. 6....$1.60-1.80

Chicago, bulk
- Gasoline, 91 oct reg....11-11.25
- Heating oil, No. 2....9.625-11.35
- Fuel oil, No. 6 high sulfur....7.5

Los Angeles, rack
- **Gasoline, 88 oct reg....11.15↓-12.65**
- Diesel fuel, PS 200....7.75-11.25
- Light fuel, PS 300....$2.80
- Heavy fuel, PS 400....$2.15-2.35

Natural Gasoline, Grade 26-70
- FOB Group 3....4.5
- FOB Breckenridge, Tex....4

LP-Gas
- Propane, Oklahoma (Group 3)....5
- Propane, Baton Rouge....5.625-5.875

Pennsylvania Lubes
- Bright stock, 25 p.t....23
- 200 vis. neutral, 25 p.t....27

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v.i....25-26
- Neutral, solvent, 200-210 vis....21.5-22.5

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i....25
- Neutral, solvent, 200 vis....21.5

Eastern Hemisphere

Singapore (Pulau Bukom), cargoes
- Avgas, grade 100/130....15.875
- Gasoline, 79 oct research....9.75
- Kerosine....10.625
- Gas oil, 48 d.i. minimum....9.875

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, (Okla.-Kan.), 36.0-36.9....$2.62-2.97
- **North Dakota, 36.0-36.9....2.47↓-2.87**
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9....3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9....2.92-3.22
  - West Texas, sweet, 36.0-36.9....3.00
  - West Texas, N.M., inter., 36.0-36.9....2.93
  - West Texas, N.M., sour, 32.0-32.9....2.71
  - East Texas, flat....3.05-3.25
  - Mirando, 28.0-28.9....3.31
- Illinois Basin, flat....3.00
- Pennsylvania Grade, Bradford dist., flat....4.55
- California, Signal Hill, 21.0-21.9....2.32†
- North Louisiana-Arkansas, 36.0-36.9....2.77-3.02
- Wyoming, sweet, 36.0-36.9....2.85-2.90
- Wyoming, sour, 32.0-32.9....2.63-2.71

Canada (flat prices, at the well)
- Pembina (Alta.)....$2.38
- Leduc-Woodbend (Alta.)....2.53
- Redwater (Alta.)....2.42
- Steelman A (Sask.)....2.435
- Virden (Man.)....2.31

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 47.0-47.9, Tucupido....$3.34
- San Joaquin, 41.0-41.9, Puerto la Cruz....3.10
- Oficina, 35.0-35.9, Puerto la Cruz....2.78-2.80
- Tia Juana, Medium, 26.0-26.9, Amuay....2.30
- Bachaquero, flat, Las Piedras....1.75-1.88
- Tarra, 38.0-38.9, San Lorenzo....2.83
- Lagunillas Heavy, flat, Las Piedras....2.10

†Differential per deg. of grav. varies.

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura....$1.90
- Safaniya, 27.0-27.9, Ras Tanura....1.50
- Iran, 34.0-34.9, Bandar Mashur....1.86
- Iran, 34.0-34.9, Abadan....1.81
- Iraq, 35.0-35.9, Fao....1.80
- Kuwait, 31.0-31.9, Mina-al-Ahmadi....1.67
- Qatar, 41.0-41.9, Umm Said....2.05
- Neutral Zone, Burgham, 23.5-24.4, Mina Saud....1.51
- N. Zone, Eocene-Ratawi, 20.5-21.4, Mina Saud...1.38

Middle East, Eastern Mediterranean
- Arabian, 34.0-34.9, Sidon....$2.27
- Iraqi, 36.0-36.9, Tripoli, Banias....2.31

Far East, Cargoes FOB Lutong, Sarawak
- Seria Light, flat....$2.57

KEY TANKER RATES

(Last paid, per long ton, single voyage)

U.S. Gulf-New York, clean (USMC—10%) $2.56↓
U.S. Gulf- New York, dirty....(USMC—7½%) $2.64
NWI-USNH, dirty....(USMC—45%) $1.51
NWI-UK/Cont., dirty....(Scale—40%) 19/6*↓
Persian Gulf-UK/Cont., dirty....(Scale—45%) 32/11*
Persian Gulf-USNH, dirty....(USMC—60%) $5.08

**Sterling.*

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DEPT/Personals

K. Roosevelt

D. T. Searls

KERMIT ROOSEVELT and **DAVID T. SEARLS** are new vice-presidents of Gulf Oil Corp. Roosevelt, who has been Gulf's director of governmental relations in Washington, D. C., since 1958, continues to be located there. He will maintain liaison between Gulf and governmental agencies of the United States and other countries in which Gulf does business. Searls, in addition to being a vice-president, will continue as the company's general counsel, responsible for corporate legal matters. He will remain at the company's general offices in Pittsburgh. At the same time, **E. D. Brockett**, who became Gulf's executive vice-president on Jan. 1, was elected a director and a member of Gulf's executive committee.

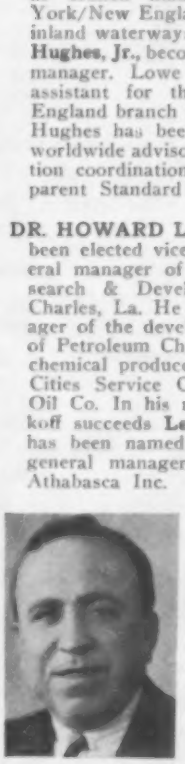
WILLIAM T. PAYNE, chairman of Big Chief Drilling Co., and president of Payne Petroleum Corp., both in Oklahoma City, has been named Oklahoma state chairman of the Crusade for Freedom, a private nonprofit organization which supports Radio Free Europe.

FRANCIS BOYER, Philadelphia, has been elected a director of Atlantic Refining Co. He is chairman of Smith, Kline & French Laboratories. He is also a director of Pennsalt Chemicals Co. and the Philadelphia Contributionship, and a member of the executive committee of the Pharmaceutical Manufacturers Assn.

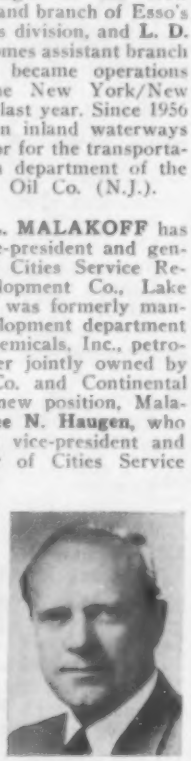
CHARLES W. HANCOCK has been named manager of the new Northern producing division, and **JAMES L. MORRIS**, manager of the new Southern producing division, of Pure Oil Co. About July 1, Pure's Rocky Mountain producing division in Denver, its Southwestern division in Tulsa, and its Eastern division in Olney, Ill., will be consolidated to form the Northern producing division; about Sept. 1, Pure's Texas producing division in Ft. Worth, and its Gulf Coast division in Houston, will form the new Southern producing division, with headquarters in Houston. Hancock, who first joined Pure in 1949, has rejoined the company to assume his new duties. He left his position as assistant to the manager of the Southwestern division last year, to become a petroleum consultant. Morris, who has been with Pure since 1938, was most recently manager of the Texas producing division. **Chase Sutton**, Gulf Coast division manager, will become senior manager of the Southern division, and will counsel Morris in the handling of operational matters. **William M. Peck**, manager of the Southwestern division, and **Worth M. Saxon**, Eastern division manager, have elected to take early retirement at the time of consolidation.

AMEDEO GIALLORENZI is the new manager of the marine services division of the Bayonne (N.J.) refinery, for the Esso Standard division of Humble Oil & Refining Co. **G. W. Lowe** succeeds Giallorenzi as branch manager of the New York/New England branch of Esso's inland waterways division, and **L. D. Hughes, Jr.**, becomes assistant branch manager. Lowe became operations assistant for the New York/New England branch last year. Since 1956 Hughes has been inland waterways worldwide advisor for the transportation coordination department of the parent Standard Oil Co. (N.J.).

DR. HOWARD L. MALAKOFF has been elected vice-president and general manager of Cities Service Research & Development Co., Lake Charles, La. He was formerly manager of the development department of Petroleum Chemicals, Inc., petrochemical producer jointly owned by Cities Service Co. and Continental Oil Co. In his new position, Malakoff succeeds **Lee N. Haugen**, who has been named vice-president and general manager of Cities Service Athabasca Inc.



Dr. H. L. Malakoff



F. L. Hartley

FRED L. HARTLEY has been elected senior vice-president and a director of Union Oil Co. of California, Los Angeles. Hartley, formerly a vice-president, will assume executive responsibility for marketing operations. **Arthur C. Stewart**, also senior vice-president and a director, who formerly supervised marketing operations, will now be responsible for research, purchasing, and the medical department. Stewart will also serve as a director of Collier Carbon & Chemical Corp., a Union Oil subsidiary. Other executives and their new positions are **C. Haines Finnell**, director of marketing; **F. K. Cadwell**, director of export and refinery bulk sales; **Dr. W. E. Bradley**, director of research, succeeding Hartley; **Jerry Lubovisky**, manager of advertising and sales promotion; and **Earl M. Welty**, director of public relations.

BRUCE W. GAMBILL, industrial relations assistant for Sinclair Oil & Gas Co., Tulsa, has been appointed acting manager of industrial relations. **C. D. Owens, Jr.,** formerly manager of industrial relations, was transferred to New York as assistant to **Millard E. Stone,** vice-president and director of industrial relations for the Sinclair companies.

B. W. Gambill

V. A. Knight

VANCE A. KNIGHT is the new assistant manager of Continental Oil Co.'s industrial relations department, in Houston. Knight, who joined Conoco in 1948, was most recently administrative assistant in the industrial relations department.

R. W. HARRIS has been named vice-president and manager of El Paso Natural Gas Co.'s new Rocky Mountain region, with headquarters in Salt Lake City. The region results from the merger of El Paso and Pacific Northwest Pipeline Corp.; and consists of the new Northwest division, representing Pacific Northwest's properties, and El Paso's San Juan division, at Farmington, N.M. The Northwest division operations superintendent is **H. P. Logan,** and **Ed Alsup** continues as superintendent of operations at the San Juan division.

DR. FRANKLIN VEATCH assumes the newly created position of research director in charge of petrochemicals, polymers, and new processes, at the Sohio Research Center in Warrensville Heights, Ohio, for Standard Oil Co. (Ohio). Veatch, who has been with Sohio's research since 1942, recently guided the company's petrochemical research team in the discovery and development research on acrylonitrile, which Sohio is now making commercially at its plant at Lima, Ohio.

GORDON M. MACE, JR., has been elected vice-president of Independent Exploration Co., Houston. Mace resigned as president of Marine Exploration Co., Houston, to join Independent when it bought out the geophysical operations of the marine company.

K. E. TAPPY, E. S. MARDIS, M. L. STANFIELD, and **S. A. CLICK** are managers of Marathon Pipe Line Co.'s new operating regions. Tappy is manager of the Great Lakes region, which was formerly the Martinsville (Ill.) division, and Mardis heads the Tri-State region, which was formerly the Bridgeport (Ill.) division. The Wyoming division, at Casper, has been renamed the Rocky Mountain region, and is headed by Stanfield. **M. E. Parker** is assistant manager there. Click is manager of the newly established Southwestern region, with headquarters in Houston. Marathon Pipe Line recently became a wholly-owned subsidiary of Ohio Oil Co., and will take over pipeline facilities and operations of the parent company, and Illinois Pipe Line Co. of Texas, another Ohio Oil subsidiary.

WILLIAM B. ANDERSON has been named to the new position of supervisor of oil purchase and exchange operations for Tidewater Oil Co.'s Western division, at Los Angeles. Anderson, with Tidewater since 1955, was formerly supervisor of the clean oil section in the division's oil purchase and exchange department, in Los Angeles.

CLARK A. GRUVER has been appointed assistant manager of Mobil Oil of Canada, Ltd., (Libyan Branch), an affiliate of Mobil International Oil Co., with headquarters in Tripoli, Gruver, who joined the Mobil organization in 1939, held positions in Venezuela and Colombia before he became manager of services for Mobil Oil de Venezuela in 1958. **Hugh M. Keeley** has been appointed regional assistant for Mobil International Oil's West Africa operations. Keeley joined the international operations of Mobil in 1947. He worked in Turkey, Greece, Nigeria, Ghana, and Venezuela before becoming operating advisor for Africa in 1958.

LAWRENCE L. SMITH assumes the newly created position of general manager, manufacturing, for Amoco Chemicals Corp., Chicago. He will be in charge of all manufacturing operations, of engineering and construction of manufacturing facilities, and of supply and transportation. He continues as a director of Amoco Chemicals, a position he has held since the company was formed in 1957. For the past year, Smith has been on a special assignment in connection with the formation of Amoco Fina S.A. by Amoco Chemicals and Petrofina S. A. of Belgium. He will also continue as a director of Amoco Fina.

L. L. Smith

R. M. Pitcher

R. M. PITCHER moves up to area engineer at Shreveport for the Carter Division of Humble Oil & Refining Co. Pitcher, formerly assistant area engineer at Shreveport, replaces **J. H. Adams,** who transfers to Carter's Billings (Mont.) office as area engineer.

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We Can Be Friends, Senator, But . . .

SENATOR PAUL DOUGLAS is the self-proclaimed "best friend the oil industry has." But the Illinois Democrat hastened to add on the Senate floor last week that his friendship is not acknowledged "by the oil associations or the gas associations."

The reason that the oil associations and the gas associations don't acknowledge Sen. Douglas as a friend is that he has been a staunch critic of percentage depletion. He is labeled along with Sens. William Proxmire (D., Wis.) and John J. Williams (R., Del.) as a leader of the antidepletion bloc in Congress.

But Sen. Douglas apparently feels that the oil industry should welcome him as a friend because he is slightly less "anti" than some other senators. Sen. Douglas favors a "progressive reduction" of the depletion percentage permitted in the tax laws, rather than a cut to a much lower "flat" percentage.

As a friend of the petroleum industry, Sen. Douglas, serving as chairman of the Joint Economic Committee of Congress, last year defined the percentage depletion provision as a "tax loophole."

Last week Sen. Douglas said that if his "simple reform" bill is turned down again, "then, in the long run, the storm of popular indignation will be so great that, instead of the mild measure which I am proposing, there will be a much more stringent measure."

IT WOULD APPEAR that the senator from Illinois is searching for friends. His bill calling for a progressive reduction in the depletion percentage polled 21 favorable votes in 1959. In 1958 two bills to cut the percentage permitted—one by Sen. Proxmire and one by Sen. Williams polled 31 and 26 votes, respectively.

The storm of popular "indignation," to which Sen. Douglas referred, would seem to be receding for the moment. Attacks on percentage depletion are far from dead, however, and it could be that Sen. Douglas' appeal for friendship is in reality a desperate attempt to win support for his "mild" bill.

THE OIL INDUSTRY WILL FIND IT DIFFICULT to count among its friends senators who have continually ignored the facts developed on percentage depletion over the years by many congressional committees and by administrative branches of the government.

If Sen. Douglas is the best friend the oil industry has, he certainly has failed to prove it on the Senate floor.

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